



THE ASSAM GAZETTE

অসাধাৰণ

EXTRAORDINARY

প্ৰাপ্ত কৰ্তৃত্ব দ্বাৰা প্ৰকাশিত

PUBLISHED BY THE AUTHORITY

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No. 600 Dispur, Monday, 22nd August, 2022, 31st Sravana, 1944 (S. E.)

GOVERNMENT OF ASSAM

ORDERS BY THE GOVERNOR

DEPARTMENT OF HOUSING & URBAN AFFAIRS

NOTIFICATION

The 29th July, 2022

No.UDD(T)267/2022/2.— In exercise of the powers conferred by the Section 9 (nine) and Sub-Section (1) of Section 10 (Ten) of the Assam Town & Country Planning Act, 1959 (as amended) and (Assam Act II of 1960) read with Sub-rule (1) of Rules 3 of the Assam Town & Country Planning (Publication of Master Plan and Zoning Regulations) Rules 1962, the Governor of Assam is pleased to publish the following notice regarding the publication of the Draft Master Plan for Chabua.

Notice for publication of the Draft Master Plan for Chabua :

1. It is notified that the Draft Master Plan for Chabua prepared by the Directorate of Town & Country Planning, Government of Assam, Town & Country Planning Act, 1959 (as amended) read with Sub-section 1 of Section 10 (Ten) of Assam Town & Country Planning Act, 1959 (as amended) for the area described in the schedule below is here by published.
2. Any person or persons affected by the Draft Master Plan may submit their objections or opinions in writing to the Director, Town & Country Planning, Government of Assam, Dispur, Guwahati-6 within two months from the date of publication.
3. The Draft Master Plan for Chabua with all relevant papers and maps may be inspected free of cost during the office hours at the office of Director, Town & Country Planning, Dispur, Guwahati-6, Office of the Deputy Director, Town & Country Planning, Dist. Office – Dibrugarh, the Circle Office, Chabua Revenue Circle, Chabua, office of the Chairman, Chabua Municipal Board, Chabua. Copies of the Draft Master Plan for Chabua are available at the office of the Deputy Director, Town & Country Planning, Dist. Office– Dibrugarh for sale on payment.

SCHEDULE :

District	:	Dibrugarh
Revenue Circle	:	Chabua
Block	:	Panitola
Mauza	:	Polonga and Bogdung
Master Plan	:	Chabua
Master plan area	:	60.23 Sq.km.
Urban Area	:	0.94 Sq.km.
Rural Area	:	59.29 Sq.Km.

Revenue Areas Included In Chabua Master Plan

S.No.	Name of town/village	Mauza	Block	Revenue Circle
1.	Chabua MB	Bogdung		Chabua
2.	Kadamoni gaon	Polonga	Panitola	Chabua
3.	Chabu Grant T.E.	Polonga	Panitola	Chabua
4.	Chabua T.E. 44/151 ORR	Polonga	Panitola	Chabua
5.	Sealkati T.E.	Polonga	Panitola	Chabua
6.	Niz-Chabua	Polonga	Panitola	Chabua
7.	Morankari gaon	Polonga	Panitola	Chabua
8.	Betmela gaon	Polonga	Panitola	Chabua
9.	Kumar gaon	Polonga	Panitola	Chabua
10.	Bhardhara Bangali gaon	Polonga	Panitola	Chabua
11.	Rajabari gaon	Polonga	Panitola	Chabua
12.	Polonga gaon	Polonga	Panitola	Chabua
13.	Koilabari bagan gaon	Bogdung	Panitola	Chabua
14.	Hatkhula bangali gaon	Bogdung	Panitola	Chabua
15.	Deodhai Kopohuwa gaon	Bogdung	Panitola	Chabua
16.	Chetia gaon	Bogdung	Panitola	Chabua
17.	Moricha gaon	Bogdung	Panitola	Chabua
18.	Dinjoy Satra	Bogdung	Panitola	Chabua
19.	Dinjoy Chapori	Bogdung	Panitola	Chabua
20.	Balijan Paniera	Bogdung	Panitola	Chabua
21.	Dongarchuk gaon	Bogdung	Panitola	Chabua
22.	Borbari Bangali gaon	Bogdung	Panitola	Chabua
23.	Merelipathar gaon	Bogdung	Panitola	Chabua
24.	Chungichuk gaon	Bogdung	Panitola	Chabua
25.	Kanjikhowa gaon	Bogdung	Panitola	Chabua

DESCRIPTION OF BOUNDARIES

- North** : Lachachani gaon, Raidang, Pakharijan gaon, Kharjan T.E.
- South** : Sialkati T.E. 202 No. NLR, Kamhatar Habi, Murani Amguri gaon, Sessa river.
- East** : Kharjan Grant, Mudoi gaon, Betioni gaon, Baruahula gaon.
- West** : Thanai chuk gaon, Hati gadhoi gaon, Nahartoli T.E.

KAVITHA PADMANABHAN,
Commissioner & Secretary to the Govt. of Assam,
Department of Housing & Urban Affairs.

CHAPTER - 1

1. INTRODUCTION TO MASTER PLAN AREA

1.1 Location

Chabua is tea-based town of Assam. It is situated 465 km. towards north-east from state capital Dispur by road and 21 km. from nearest important town Tinsukia and 28 Km from district head quarter Dibrugarh. The town and its surrounding villages itself have a natural scenic beauty with the tea gardens and the place of habitants of the various ethnic tribes with their own cultural heritage. The geographical location of Chabua town is 27.48° North latitude and 95.18° East longitude and has an average elevation of 106 meters. The Assam Trunk road NH-15 (new) passes through Chabua.



1.2 Regional Setting

Chabua master plan region falls in the north-eastern part of India in the upper Assam valleys. The whole master plan area is a flat level plain in the Bogdung and Pulunga mauza. The general physical feature of the master plan area is both varied and picturesque in nature. The soil is composed of loose sandy texture with occasional sands and gravels. The phosphoric content is found in the soil which is good for tea



cultivation. Acidic alluvial soils are suitable for tea cultivation. Like the rest of Assam, Chabua master plan region is also a seismic area and is liable to earthquake. The great earthquake of 1897 was felt all over the region. It damaged many houses and buildings of the people as well as of the Govt. Again the earthquake of August 15, 1950 has also damaged houses buildings and roads. The after effect of the earthquake brought a vast change to the topography of the region. The surrounding areas of Chabua are mainly covered by tea gardens.

1.3 Brief History of the town

In the early 1820s, the British East India Company began large-scale production of tea in Assam, India, of a tea variety traditionally brewed by the Singpho tribe. In 1826, the British East India Company took over the region from the Ahom kings through the Yandaboo Treaty. Robert Bruce, an official of the British Empire, who is credited with the discovery of tea in Assam in 1823, gave publicity of the existence of the plant, the leaves of which were boiled to prepare the tea. Chabua came in existence in the year 1823. Many poor Indian labours were taken by force to work in some plantation and in an unknown place. These poor labours were unaware of the farm and the plantation they were made to work for, but these labours were also surprised on the Britishers crazy behaviour for giving such importance to this wild plant. When these awestruck labours were asked they said "they were working for the plantation of sowing the wild plant which they called "CHA" - "TEA" and "BUA" - "SOW". Hence the place got its name "CHABUA".

In 1837, the first English tea garden was established at Chabua in Upper Assam; in 1840, the Assam Tea Company began the commercial production of tea in the region, run by indentured servitude of the local inhabitants. Beginning in the 1850s, the tea industry rapidly expanded, consuming vast tracts of land

for tea plantations. By the turn of the century, Assam became the leading tea-producing region in the world.



Old Historical map showing Chabua

2. **During World War II, Chabua Air Force Station was constructed on the outskirts of the town. Chabua airfield was one of the largest bases used by the USAAF (United States Army Air Forces) Air Transport Command to ferry supplies and personnel across The Hump to China in World War II. Chabua was headquarters for both the Assam and Bengal Wings of the India-China Division, ATC (Air Traffic Control); and the operating base for the flying squadron of the 1333rd AAF (Army Air Forces) Base Unit.**



Chabua Air-force station during World War-II

Chabua town was originally a part of Lakhimpur district. When Lakhimpur district was bifurcated on 2nd Oct, 1971 and formed a separate district Dibrugarh, Chabua was created a revenue circle of Dibrugarh district. The Town Committee at Chabua was constituted on 22nd Feb, 1961. It consists of 6 (six) nominated members including the Chairman and Vice-Chairman. The area of this Town Committee decreased from 2.59 Sq. Km. shown in the 1961 census to 0.94 Sq. Km. according to the 1971 census. Its population on the other hand increased to 3888 persons as per the 1971 census from 2533 persons shown in the 1961 census. As per 2011 census the population of Chabua town was 8966 persons. As per Govt. notification No. UDD(M)263/2017/13 dated 11th Oct, 2018, Chabua

Town Committee upgraded to Chabua Municipal Board under Category-V and increased the number of wards from 4 to 10.



Chabua Municipal Board

2.1 Climate

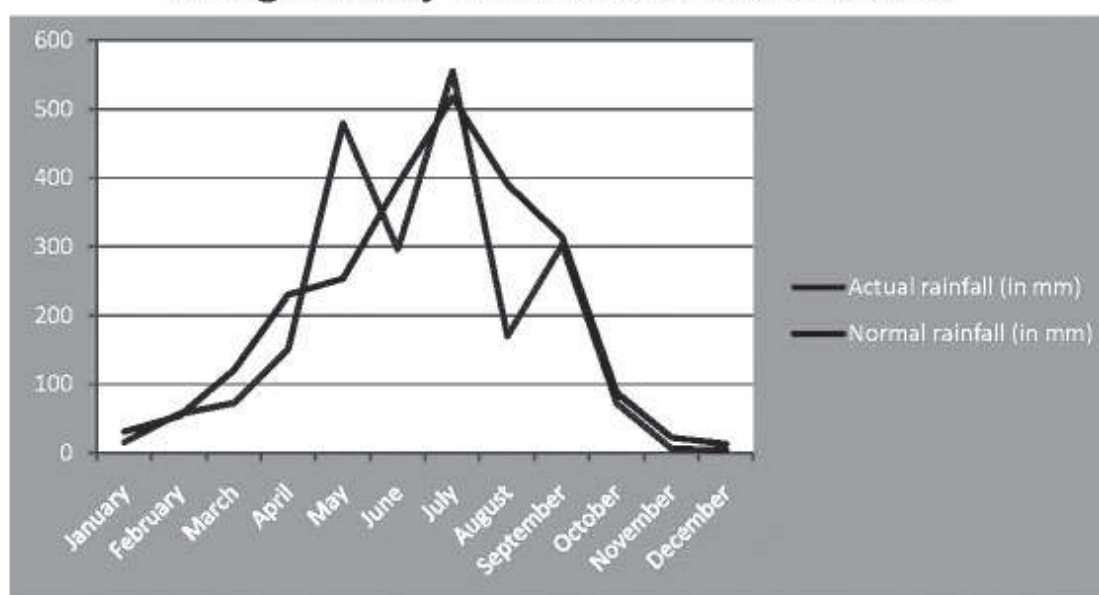
The climate of Chabua is characterized by the absence of a dry hot summer season, the highest temperature being experienced during the monsoon season along with abundant rains and highly humid atmosphere throughout the year. Winter starts from December and end in February which is followed by a season of thunder storms from March to May. From June to the beginning of October is the season of south-west monsoon and October and November are marked as post monsoon season. The annual rainfall varies marginally from one to other. The cold season starts towards the end of November when both day and night temperatures begin to decline. December and January are the coldest month of the year. With the mean daily maximum temperature at about 24.3°C and the mean daily minimum at 10.5°C to 11.5°C. Temperature begins to rise from the beginning of March. The rise in temperature continues up to August. The highest mean daily temperature experienced in July and August when the mean daily maximum temperature goes up to maximum of 34°C and the mean daily minimum temperature varies between 20°C to 25°C. With the termination of the monsoon season the weather become gradually pleasant and cool. The air remains highly humid throughout the year except during the period of February to march when the relative humidity is comparatively less particularly in the afternoon. Winds are light throughout the year except the short spells of strong winds during thunder storms in the period from March to May.

TABLE No-1
Average monthly rainfall data in Chabua in 2019

Month	Actual rainfall (in mm)	Normal rainfall (in mm)
January	15.0	30.6
February	56.4	53.1
March	72.4	119.8
April	151.4	229.8
May	479.4	253.5
June	295.8	390.4
July	555.3	516.6
August	169.8	390.6
September	302.4	314.0
October	72.2	87.0
November	5.9	21.9
December	3.8	12.5
Average Annual rainfall	2179.8	2419.8

Source:- Statistical Hand Book Assam 2020

Figure No-1
Average monthly rainfall data of Chabua in 2019



2.2 Topography

Topography is the study of the shape and features of the surface of the earth. The topography of an area could refer to the surface shapes and features themselves, or a description in maps. In modern usage topography involves generation of elevation data in digital form. It is often considered to

include the graphic representation of the landform on a map by a technique, including contour lines, hypsometric tints and relief shading.

Below is the elevation map of Chabua, which display range of elevation with different colours. The map also provides idea of topography and contour of Chabua.



Topographical map of Chabua

2.3 Soil Condition

Physiographically the area is characterized by Sessa river plains in the southern part with gentle slope towards south. The soil in the area may be grouped in to two broad categories depending upon the origin and occurrence. These are given below-

- a. Newer alluvial soil – Flood plain areas of river Sessa and the tributaries in the northern part are characterized by light gray clay with sand and silt.
- b. Older alluvial soil - It occurs mainly in the central part with limonite yellow to reddish yellow clay.

Alluvial plain covers major part of the area. Ground water occurs in regionally extensive aquifers down to explored depth with a very good yield prospect. The aquifers are consisting of sand of various grades and are suitable for both shallow and deep tube wells. Chabua region is covered by alluvial deposits of recent and sub-recent origin. In many places of the Sessa river area, there are terrace deposits.

2.4 Settlement Pattern

Chabua experienced the settlement of traders, construction workers, plantation workers, commercial establishment employees, tea-based workers, service oriented workers and Govt. employees since the early days. In Chabua master plan area there are 3 big tea gardens which

support a good number of labourers and their families and the members of supervisory and managerial staff. In the town area settlement pattern mainly exhibits by the Hindi, Bengali and Assamese speaking population. Indigenous people settlement is mainly found in the rural areas.

2.5 Rural-Urban-Scenario

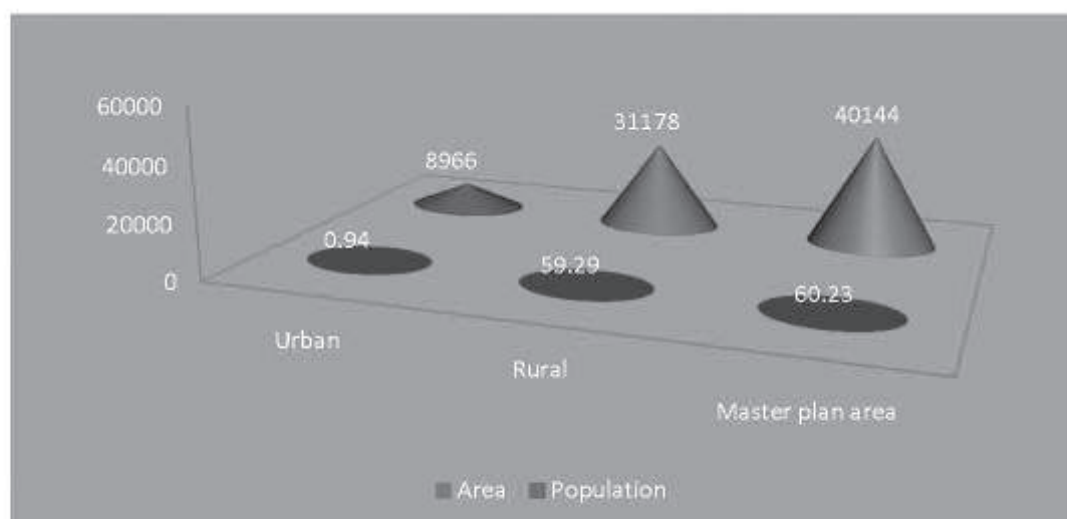
Chabua master plan covers an area of 60.23 sq.km. Out of this urban area consists of 0.94 sq.km. and 59.29 sq.km. occupy by rural area. As per 2011 census urban area population is 8966 persons and rural area population is 31178 persons. So, in Chabua master plan area (CMPA), urban population consists of 22.33% and rural area population consists of 77.67%. Since originally Chabua developed as a tea-based town and there are so many tea-gardens in the periphery of the town and the population working as tea workers and in tea factories and therefore the percentage of rural population is higher in comparison to urban population in the master plan area.

TABLE NO :- 2
Urban & Rural Area Population Figure in Master Plan Area

Name of the Master plan area	Category of area	Area in sq.km	Population in 2011
Chabua master plan	Urban	0.94	8966
	Rural	59.29	31178
Total		60.23	40144

Source:- Census of India 2011

FIGURE NO-2
Urban & Rural Area Population Figure in Master Plan Area



2.6 Physical Growth and Expansion of the town

Physical growth and expansion of Chabua town has been mainly taken place due to the tea based industries, commercial establishment, agriculture etc. Further, expansion of the town also takes place due to the defence point of view such as Chabua Air Force Station (ICAO: VECA).

For planning purpose Chabua master plan area has been divided into the following zones:-

A. The Urban zone comprises the following areas:

1. 10 (ten) wards under Chabua Municipal Board.

B. The rural zone comprises the following villages and tea gardens.

1. 21 Villages.
2. 3 Tea Gardens.

TABLE NO-3
Detailed area of Chabua Master Plan

S.No.	Name of town / village	Area in Hectare
1	Chabua MB	94.00
2	Kadamoni gaon	78.55
3	Chabu Grant T.E.	713.94
4	Chabua T.E. 44/151 ORR	457.17
5	Sealkati T.E.	584.78
6	Niz-Chabua	200.60
7	Morankari gaon	76.05
8	Betmela gaon	154.43
9	Kumar gaon	200.46
10	Bhardhara Bangali gaon	313.70
11	Rajabari gaon	139.03
12	Polonga gaon	338.87
13	Koilabari bagan gaon	300.71
14	Hatkhula bangali gaon	217.25
15	Deodhai Kopohuwa gaon	226.21
16	Chetia gaon	202.62
17	Moricha gaon	149.00
18	Dinjoy Satra	139.86
19	Dinjoy Chapori	178.28
20	Balijan Paniera	224.13
21	Dongarchuk gaon	223.57
22	Borbari Bangali gaon	263.33
23	Merelipathar gaon	171.79
24	Chungichuk gaon	194.45
25	Kanjikhowa gaon	180.68
	TOTAL	6023.46

Source : Area as per GIS calculation

2.7 Need of the Master plan

The concept of planning has evolved gradually through the changing demand of man and environment but has assumed greater significance and wider connotation with the inception of the present century. The rapid pace of industrial expansion and urbanization has hastened the growth of urban centres. The forces operating behind urban expansion in recent years is becoming more and more difficult to direct or to control. To check the unplanned and haphazard growth of the towns, the principles of planning has been accepted as urgent an imperative.

A town is composed of land, building, people, utilities, services and transportation. It is a large configuration of more or less permanent settlers engaged in diverse economic activities. As the town grows, it attracts larger population; it enlarges the scope of their activities, while the complexity of living distorts the well organized concept of the urban space organization.

Master plan is a statutory instrument for the provision of long-range vision for the built environment of a community. It guides the appropriate use of lands within a town and its adjacent areas in order to protect the public health and safety and to promote general welfare. Among other issues, the master plan can identify suitable locations for commercial, housing and mixed-use development; locations where the city/town should increase density, use redevelopment or intervene otherwise; opportunities to extend or improve open space, recreational areas and civic facilities; strategies for increasing economic development; environmental, historic strategies for solving congestion, improving transit services and also enhance the aesthetic beauty of the town. As a result, the master plan has a direct relationship to its citizens, whether we live, work or own a business.

The evils of unplanned growth of our towns have caused enormous problems such as shortage of living accommodation, traffic congestion, lack of sanitation and other community facilities and amenities. The growth of population and the potentiality of Chabua to be a tea based industry and commercially vibrant town in the near future had led the state Government to realize the importance of proper planned growth of the town and the preparation of the master plan for this purpose.

In order to translate the suggested developments for Chabua into action, it would be necessary to follow this master plan which is designed to regulate the future growth and to affect a uniform community. In preparing the master plan for Chabua, various surveys such as land-use, socio-economic etc. were carried out to understand the existing scenario of the town and to suggest the line of actions to be adapted.

It is highly desirable at this point that the citizens of Chabua should clearly understand the need for the master plan because a master plan is the city/town's long range plan and is important as it affects things we do every day and how we will do then in the future master plan guide city/towns decisions about important issues like what economic development strategy the city town should take; where certain types of business should the town try to attract; how much parking should be provided in neighbourhood; what improvements should be made to parks and recreations centres; How to protect our natural resources; why certain areas are designed as historic places. So when we wonder why a building is allowed to be located somewhere, why certain streets are one-way streets, why a park has been built in our neighbourhood; a good place to start looking is the master plan. As such the most desired results could be positive civic interest and greater confidence which will create a conducive environment and our descendents will profit by our forethought or suffer from our negligence. What better work can we achieve than make their path easier, their homes more intimate, their public buildings more attractive and accommodating.

CHAPTER -2**3. DEMOGRAPHY****3.1 Total Population**

Demography is the study of human population such as size, growth, density, distribution and vital statistics. It helps to understand population dynamics by investigating three main demographic processes in Chabua. It is essential that a good understanding of a population dynamics provide the basic for decision making, policy development and planning social and economic development processes and outcomes are depends upon the detailed study of population characterized of any planning area.

According to census of India 2011, the total population of Chabua master plan area is 40144 persons, out of which 8966 persons live within Chabua municipal board, 31178 persons live in rural areas of the town. The following table shows the population distribution within Chabua master plan area.

TABLE NO. 4
Population of Chabua Master Plan area in 2011

Sl. No.	Area	Population (2011)	Percentage (%)
1	Chabua municipal board	8966	22.33 %
2	21 villages & 3 tea gardens	31178	77.67 %
	Master Plan Area	40144	100 %

(Source : Census of India 2011)

FIGURE NO. 3
Population Distribution of Chabua Master Plan Area in 2011

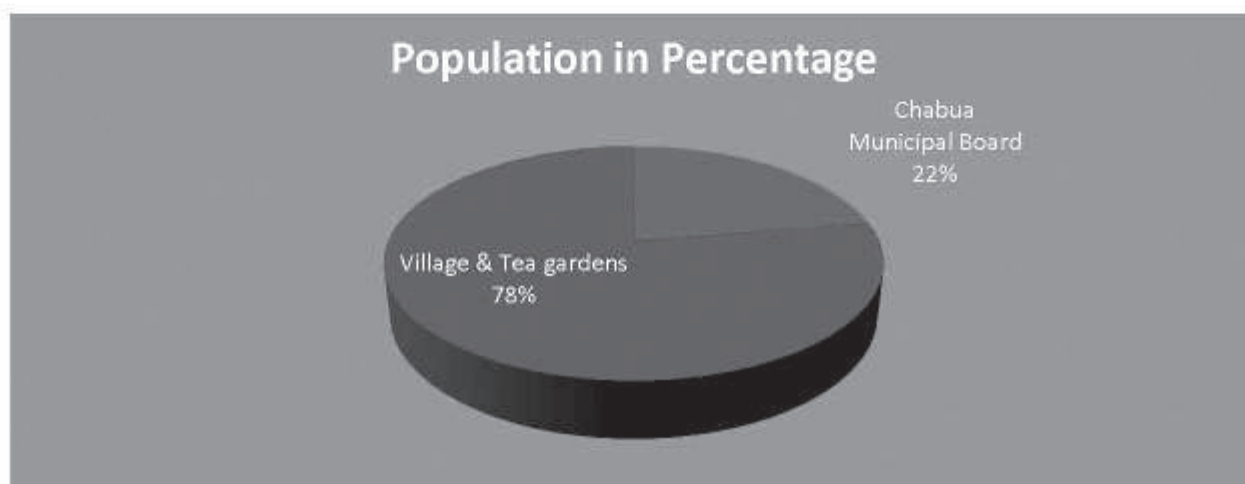


TABLE NO. 5
Detail population distribution of Chabua Master Plan area in 2011.

S.No.	Name of town / village	Population		
		Male	Female	Total
1	Chabua MB	4593	4373	8966
(A) Municipal Area Population		4593	4373	8966
2	Kadamoni gaon	445	456	901
3	Chabu Grant T.E.	742	740	1482
4	Chabua T.E. 44/151 ORR	976	944	1920
5	Sealkati T.E.	220	224	444
6	Niz-Chabua	1158	1059	2217
7	Morankari gaon	267	253	520
8	Betmela gaon	554	545	1099
9	Kumar gaon	579	599	1178
10	Bhardhara Bangali gaon	687	648	1335
11	Rajabari gaon	462	434	896
12	Polonga gaon	1010	891	1901
13	Koilabari bagan gaon	380	468	848
14	Hatkhula bangali gaon	1323	1197	2520
15	Deodhai Kopohuwa gaon	505	498	1003
16	Chetia gaon	363	357	720
17	Moricha gaon	1136	1096	2232
18	Dinjoy Satra	438	431	869
19	Dinjoy Chapori	158	141	299
20	Balijan Paniera	712	700	1412
21	Dongarchuk gaon	388	397	785
22	Borbari Bangali gaon	874	818	1692
23	Merelipathar gaon	1347	1298	2645
24	Chungichuk gaon	545	482	1027
25	Kanjikhowa gaon	612	621	1233
(B) Rural Area Population		15881	15297	31178
(A)+(B) TOTAL MASTER PLAN AREA		20474	19670	40144

(Source : Census of India, Assam 2011)

FIGURE NO.4
Male & Female population distribution of
Chabua Master Plan Area in 2011

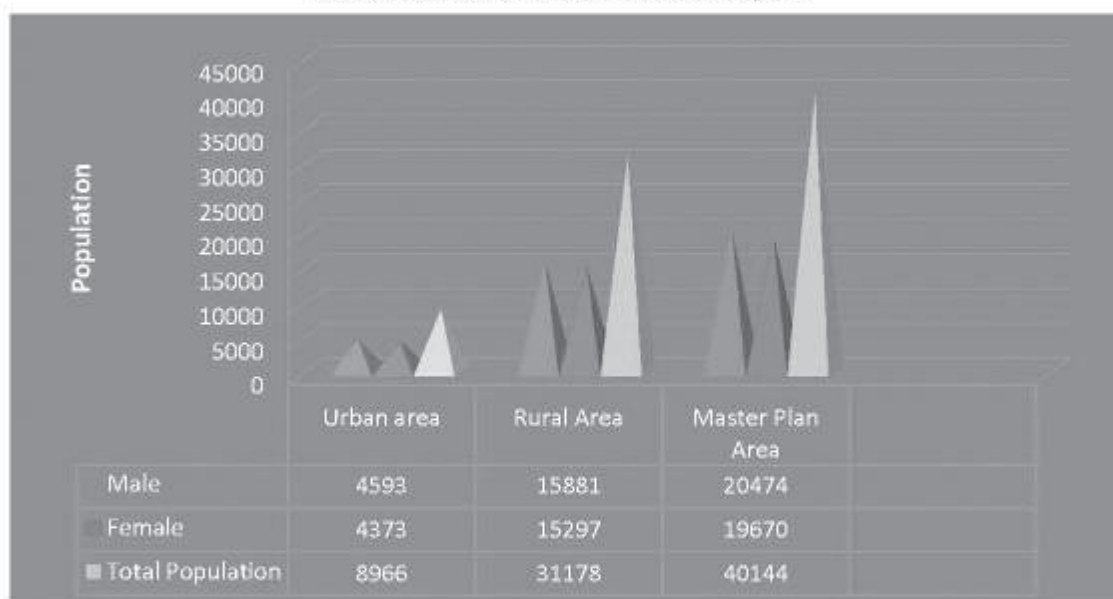
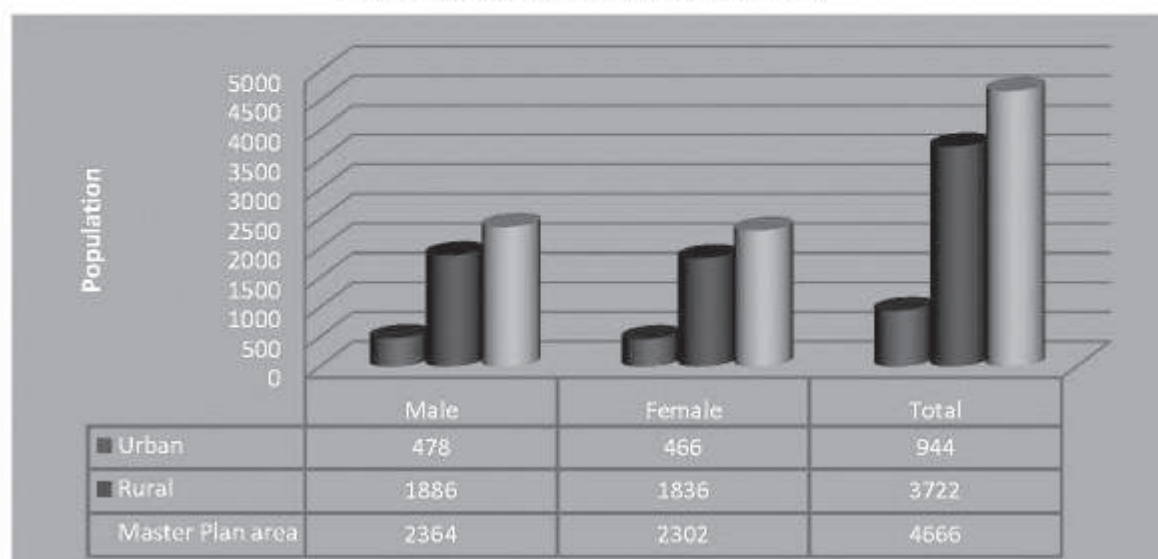


TABLE NO. 6
Population distribution of 0 - 6 years age group of
Chabua Master Plan area in 2011.

Name	Population		
	Male	Female	Total
Urban area	478	466	944
Rural area	1886	1836	3722
Total Master Plan Area	2364	2302	4666

Source:- Census of India 2011

FIGURE NO. 5
Population distribution of 0 - 6 years age group of
Chabua Master Plan area in 2011



3.1.1 Population Growth Rate

The purpose to provide facilities and services in community is to meet the physical, economic and social needs of the people. It is a study and understanding of the growth, distribution, composition and other characteristics of the population and trend are therefore the basic requirement for the wider range planning programmers. The objective of the master plan for Chabua is to cater to the various needs emerging from these studies in order to meet the aspirations of its residents for whom the plan is prepared.

Table No. 7
Growth of population in Chabua Municipal area

Year	Population	Decadal Growth Rate
1961	2533	-
1971	3888	53.49%
1981	No census in Assam	No census in Assam
1991	6104	57% (for 2 decades)
2001	7230	18.45%
2011	8966	24.01%

Source:- Census of India 2011

Figure No.-6
Decadal growth of population in Chabua Municipal area
1961 to 2011

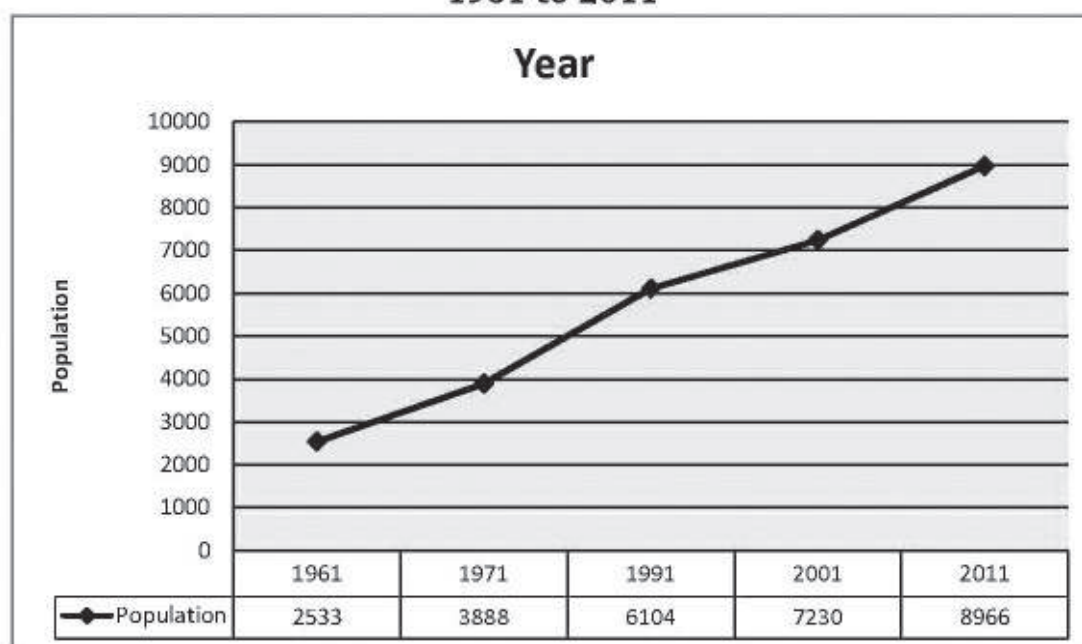


Figure No.-7
Decadal growth rate (in %) in Chabua Municipal area

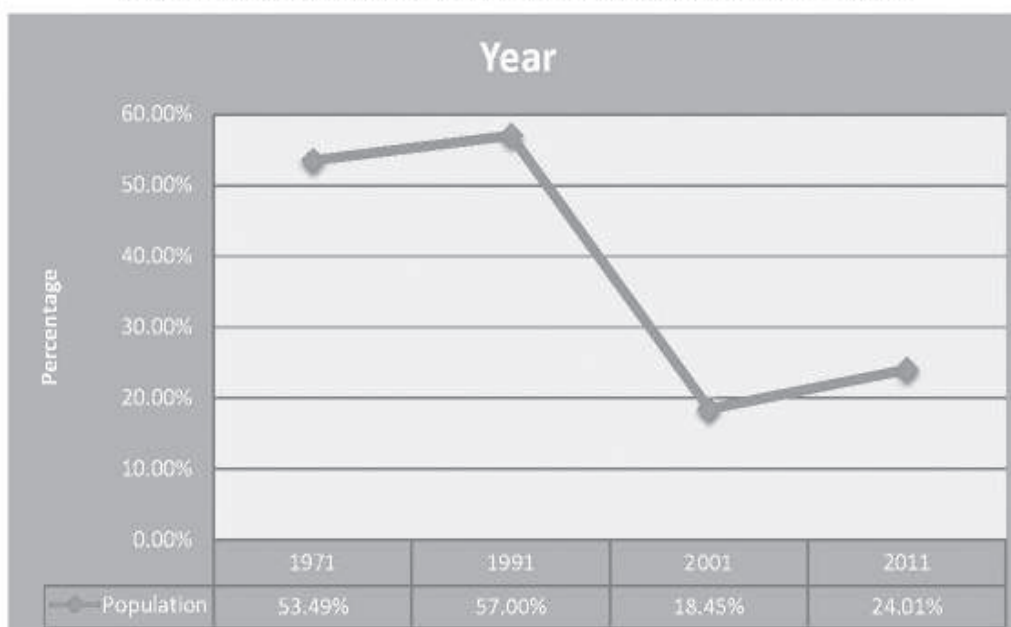


Table No. 8
Growth of population in Chabua Master Plan

Year	Urban Area			Rural Area			Master plan Area		
	Population	Decadal increase of population	Decadal Growth (%)	Population	Decadal increase of population	Decadal Growth (%)	Population	Decadal increase of population	Decadal Growth (%)
1991	6104	-	-	24406	-	-	30510	-	-
2001	7230	1126	18.45 %	27911	3505	14.36 %	35141	4631	15.18%
2011	8966	1736	24.01 %	31178	3267	11.70%	40144	5003	14.24 %

Source:- Census of India 2011

FIGURE NO.-8
Growth of population in Chabua Master Plan

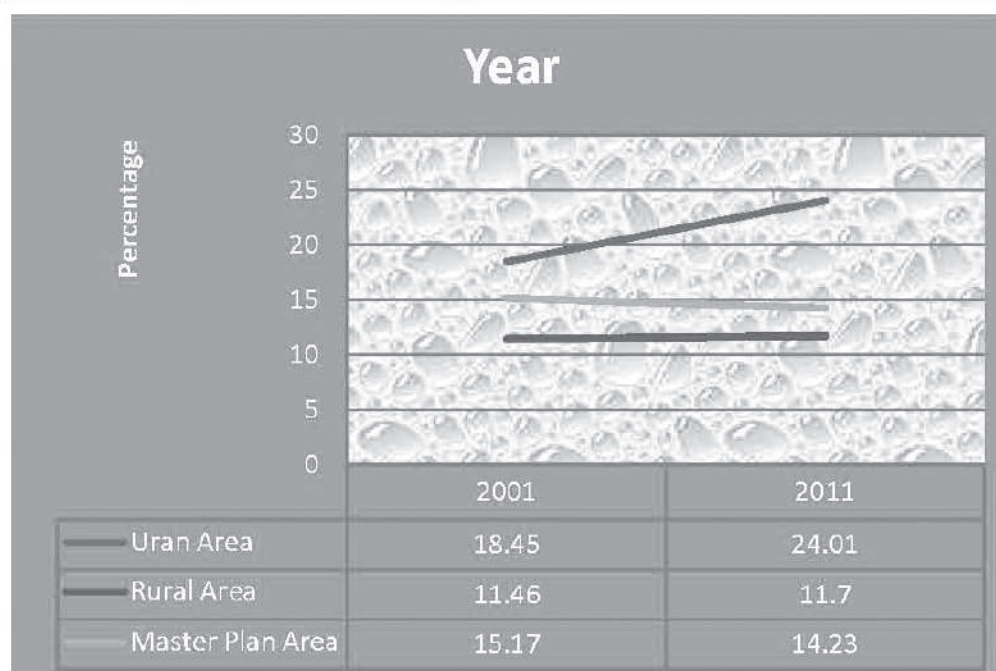
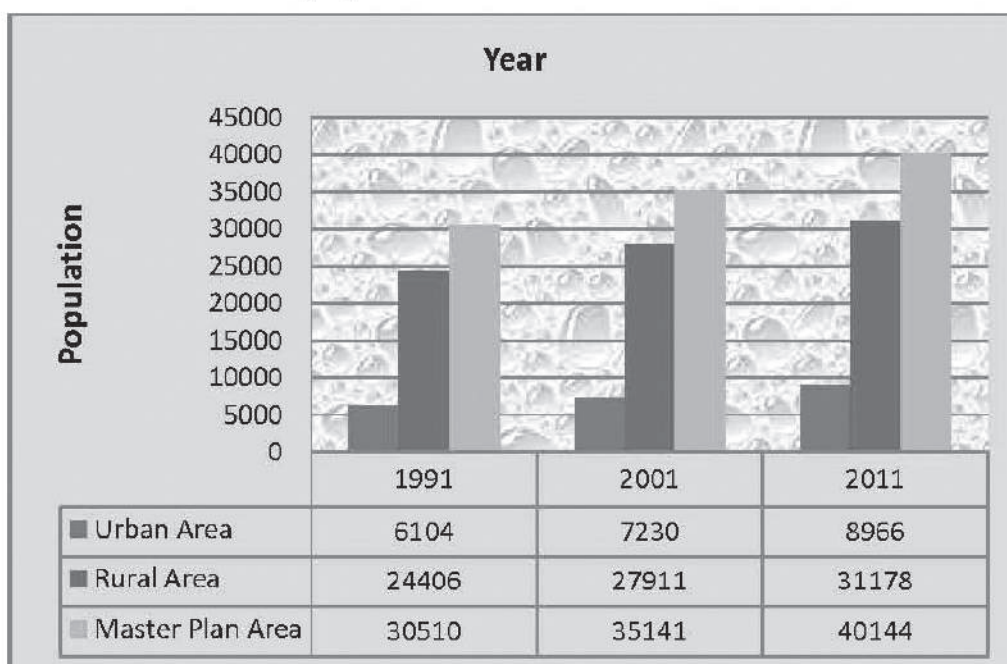


TABLE NO. 9
Population growth rate of Assam and Chabua Master Plan Area:
1991 – 2011

Area	Population			Growth Rate in %	
	1991	2001	2011	1991-2001	2001-2011
Assam State					
Total	22.49	26.66	31.17	18.54 %	16.93 %
Urban	2.49	3.44	4.39	38.24 %	27.61 %
Rural	19.93	23.22	26.78	16.51 %	15.35 %
* Population in Millions					
Chabua Master Plan					
Total	30.51	35.14	40.14	15.17	14.23
Urban	6.10	7.23	8.96	18.45	24.01
Rural	24.40	27.91	31.17	11.46	11.70
* Population in Thousand					

Source:- Census of India 2011

3.1.2 Population Density

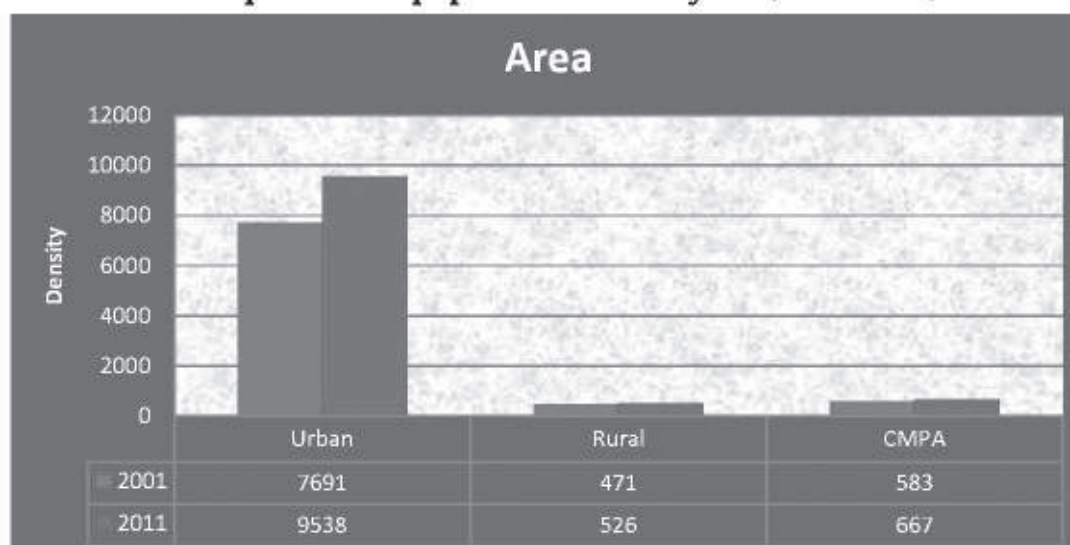
The net density of population in Chabua municipal board area in 2011 is 9538 person per sq.km. In rural area of master plan the density is 526 persons per sq.km. If we consider the master plan as a whole the density of population in 2011 is 667 person per sq.km. in Chabua master plan area.

TABLE NO-10
Comparison of population density in 2001 and 2011

Year	Urban area	Rural area	Master plan area
2001	7691	471	583
2011	9538	526	667

Source:- Census of India 2001 & 2011

FIGURE NO-9
Comparison of population density in 2001 and 2011



3.2 Sex Ratio

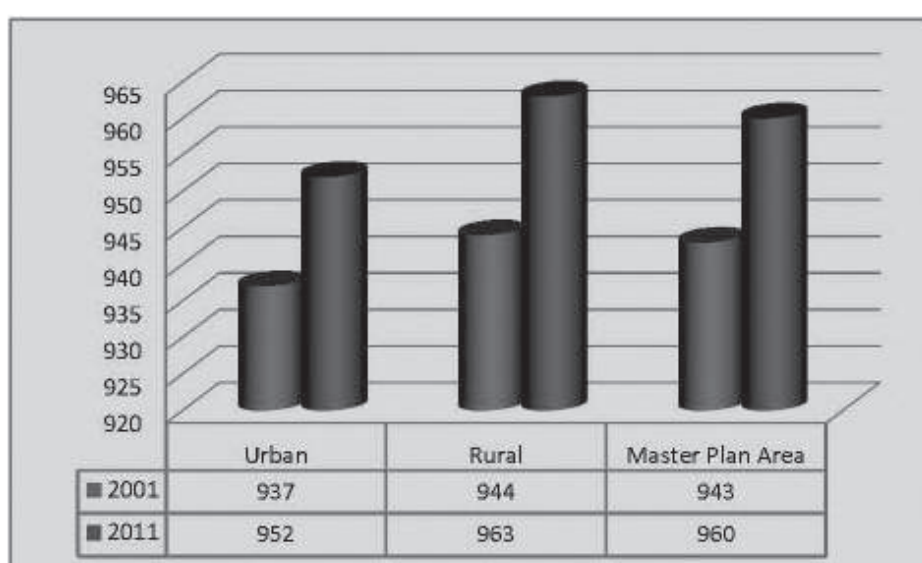
As per 2001 census the sex ratio in urban area of Chabua master plan was 937 which is increase to 952 in 2011 census. In rural area sex ratio increased from 944 in 2001 to 963 in 2011. In Chabua master plan area as a whole the sex ratio increases from 943 in 2001 to 960 in 2011. It has been noticed that the sex ratio in rural area as compared to urban area of master plan is higher both in the year 2001 and 2011. It is due to the fact that Chabua master plan area is mainly agriculture & tea garden based area and pre-dominance of female worker has been seen in tea gardens. Sex ratio of Chabua master plan has been shown in the following table.

TABLE NO. 11
Comparison of Sex Ratio in 2001 & 2011
in Chabua Master Plan area

Year	Area	Male	Female	Sex-ratio
2001	Urban	3731	3499	937
	Rural	14357	13554	944
	Master Plan Area	18088	17053	943
2011	Urban	4593	4373	952
	Rural	15881	15297	963
	Master Plan Area	20474	19670	960

Source:- Census of India 2011

FIGURE NO-10
Comparison of Sex Ratio in 2001 & 2011
in Chabua Master Plan area



3.3 Literacy

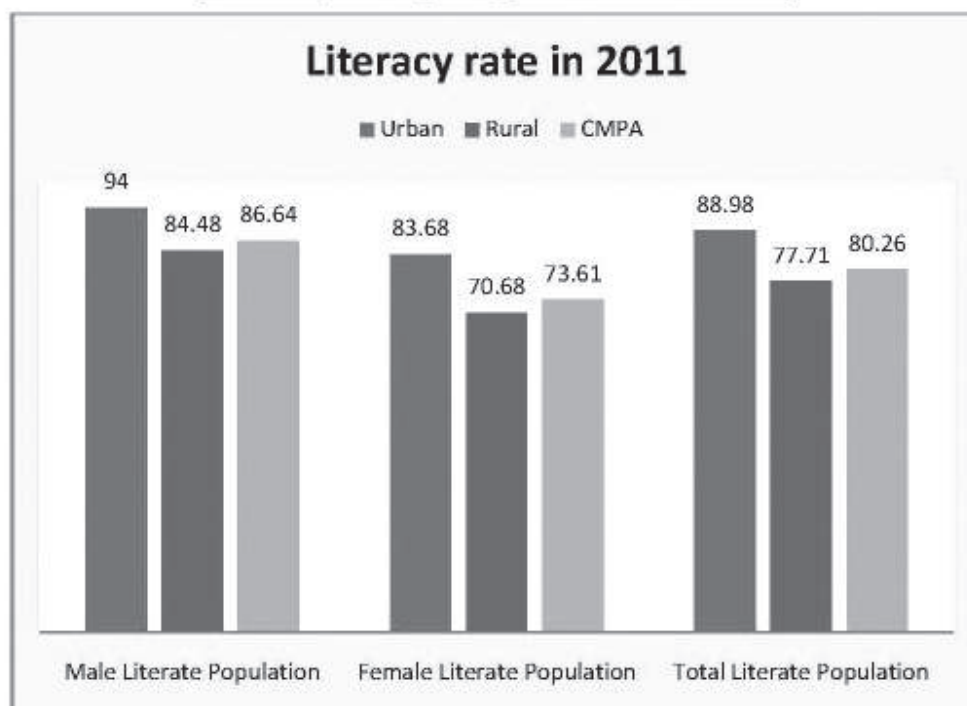
The literacy rate of Chabua urban area as per census of India report, 2011 is 85.52% which is just below state urban literacy rate of 88.88%. In the master plan area the literacy rate in 2011 is 70.09%. The comparison of literacy rate in 2001 and 2011 for Chabua master plan area is given below:-

TABLE NO:- 12
Literacy rate of CMPA in 2011

LITERACY RATE OF CMPA - 2011												
Area	Total Male pop	Total Male pop Excluding 0-6 age	Actual Male Lit pop	% Male Lit	Total Female pop	Total Female pop Excluding 0-6 age	Actual Female Lit pop	% Female Lit	Total Pop	Total pop Excluding 0-6 age	Total Actual Lit Pop	% of Total Lit
Urban	4593	4113	3868	94%	4373	3907	3270	83.69%	8966	8022	7138	88.98%
Rural	15881	13995	11823	84.48%	15297	13461	9514	70.68%	31178	27456	21337	77.71%
CMPA	20474	18110	15691	86.64%	19670	17368	12784	73.61%	40144	35478	28475	80.26%

Source:- Census of India 2011

FIGURE:- 11
Literacy rate (in %) of CMPA in 2011



3.4 Working and Non-Working Population

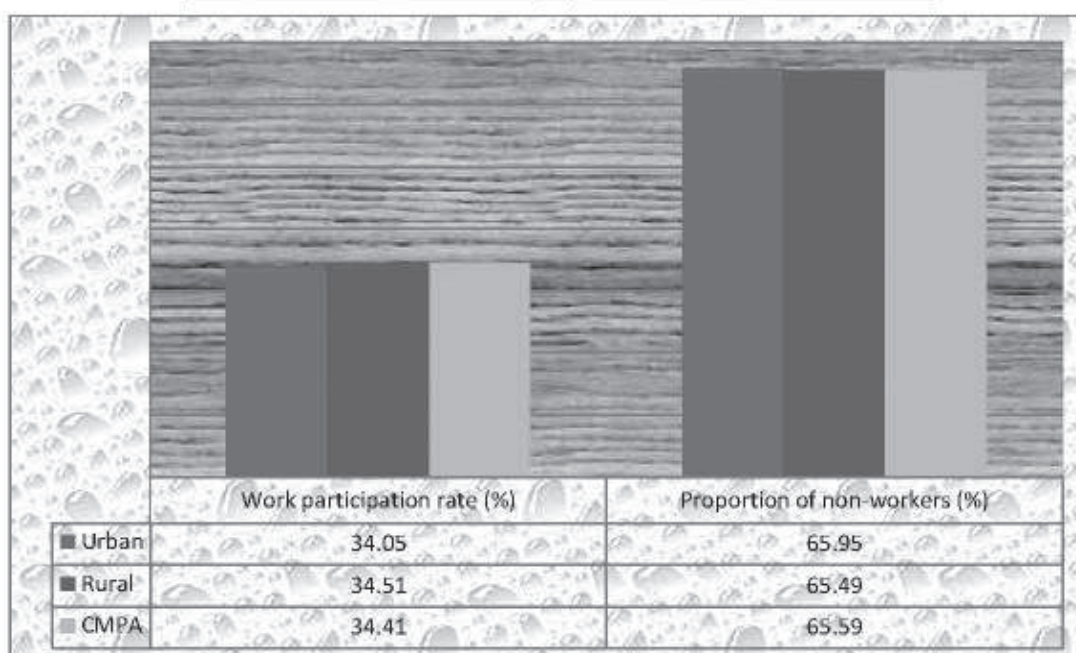
Out of total population of 40144 persons in Chabua master plan area the working population is 13814 persons equivalent to 34.41% which is slight lower than the national average of 38%. The balance non-working population is 26330 i.e. 65.59% mainly consist of women group and unemployed section of the population who are seeking employment in white collard jobs as well as investment opportunities in business and children (below 15years).

TABLE NO:- 13
Workers And Non-Workers In Chabua Master Plan area

Category	Urban Area			Rural Area			Total (Master Plan Area)		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Main Workers	2255	395	2650	5714	1624	7338	7969	2019	9988
Marginal Workers	248	155	403	2075	1348	3423	2323	1503	3826
Total Workers	2503	550	3053	7789	2972	10761	10292	3522	13814
Non-workers	2090	3823	5913	8071	12346	20417	10161	11894	26330
Work participation rate (%)	54.50	12.58	34.05	49.05	19.43	34.51	50.27	17.90	34.41
Proportion of non-workers (%)	45.50	87.42	65.95	50.95	80.57	65.49	49.73	82.10	65.59

Source:- Census of India 2011

FIGURE NO:- 12
Workers and Non-Workers (%) in Chabua Master Plan area



3.5 SC-ST Population

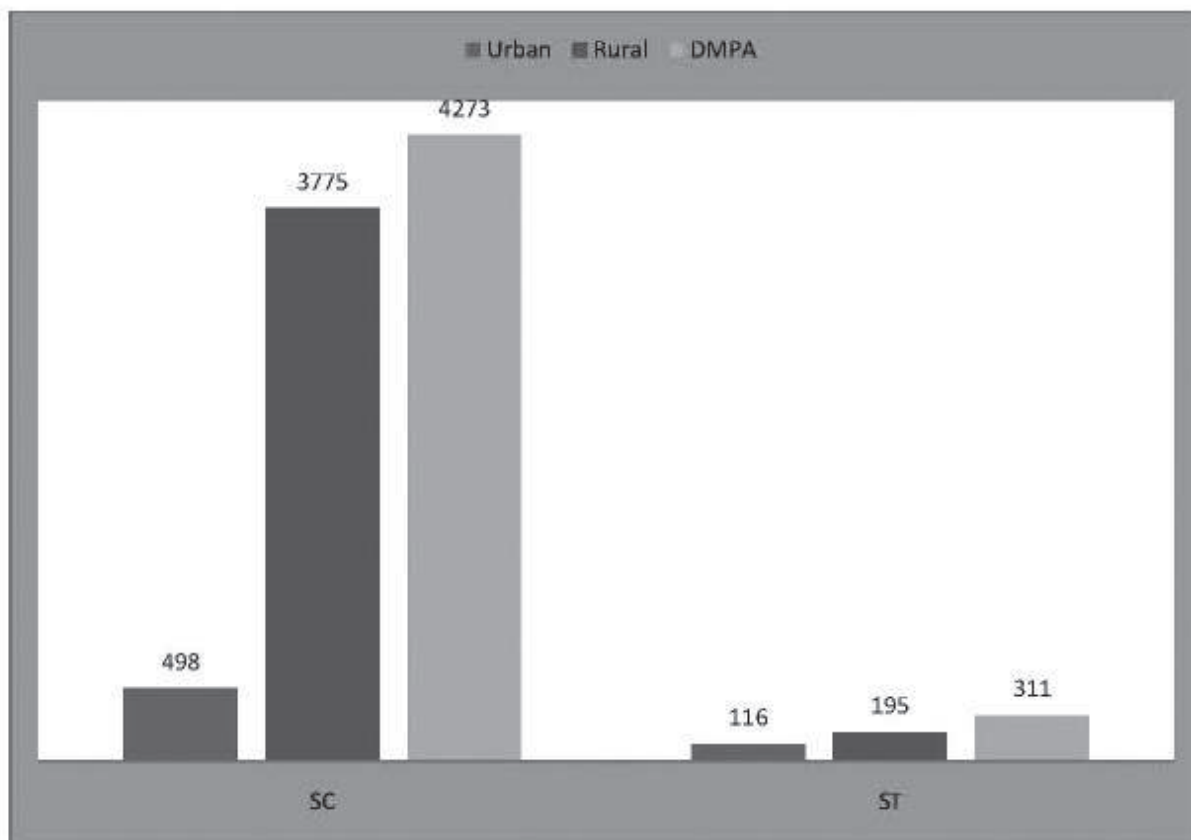
The details of SC and ST population for the Chabua master plan area (CMPA) have been shown in the following table.

TABLE NO:- 14
SC and ST population of CMPA in 2011

Caste	Urban	Rural	CMPA
SC	498	3775	4273
ST	116	195	311

Source:- Census of India 2011

FIGURE :-13
SC and ST population of CMPA in 2011



3.6 Migration Population

The robust local economy once attracted scores of people from other parts of the country to settle here in search of jobs and business opportunities. In addition to Assamese and various indigenous ethnic groups, the town is home to hundreds of people who migrated from undivided Bengal, Bihar, Uttar-Pradesh for business purposes. Apart from these a large section of tea-garden workers from Orissa and Jharkhand migrated to this region since long back to work as a labourer in the tea gardens.

3.7 Residential Density and Size

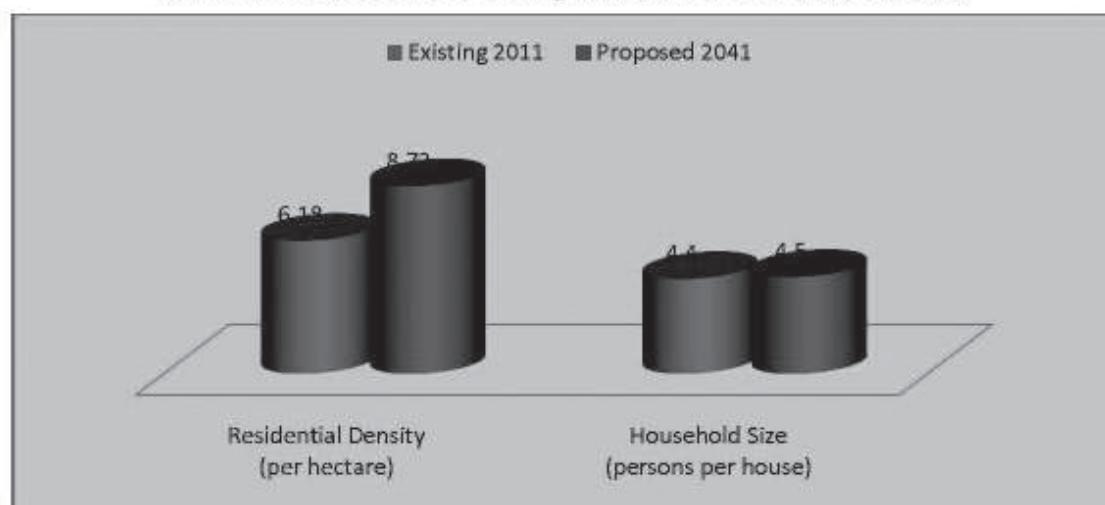
There are about 9132 residential houses in the year 2011 in Chabua master plan area. The total population of planning area is 40144 persons, as such, household size is 4.40 persons. Since in Chabua master plan the existing land used for residential purposes is 1478 hectares, as such existing residential density is 6.18 dwelling units per hectare. As per projection, gross housing requirement in the planning area is 18362 in 2041 and proposed land uses for residential purpose is 2106 hectares, as such the residential density in the year 2041 will be 8.72 dwelling units per hectare. The household size in 2041 will be 4.5 persons per house.

TABLE No-15
Existing and proposed Residential Density
and Household size comparison in 2011 and 2041

	Existing 2011	Proposed 2041
Residential Density	6.18 DW / hectare	8.72DW / hectare
Household Size	4.40 persons / house	4.5 persons / house

Source:- Census of India 2011

FIGURE No-14
Existing and proposed Residential Density
and Household size comparison in 2011 and 2041



3.8 Population Projection

Population projection is a forecasting tool that helps to estimate the changes in population size and demographic structure. It is mandatory for the Govt. Policy makers and planners of Assam, in order to determine the future demand for basic human needs such as food, water, education, energy and services and to forecast future demographic characteristics.

The main objective is to provide or undertake activities aimed at achieving population stabilization, sustainable economic growth, social development and environmental protection by 2041.

Population projection is a scientific attempt to keep into the future population scenario, conditioned by making certain assumptions, using data to the past available at that point of time. Assumption's used and their probability of adhering in future forms a critical input in this mathematical effort. Predicting the future course of human fertility and mortality is not easy, especially when looking beyond much further in time. Medical and health intervention strategies, food production and its equitable availability, climatic variability, socio-cultural setting, economic condition and a host of other factors influence population dynamics, making it a somewhat unpredictable exercise. Therefore much caution must be exercised when either making or using the population projection and the context of various conditions imposed, should not be lost sight of on the basis of past behaviour and the likely future scenario assumed.

The final population projections of Chabua master plan area have thus been arrived at with the entire base population of 1991 accounted for as the natural population, by adding to the natural population the increase due to the natural growth plus the increase due to emigrational flow of trade & commerce including natural increase of migrants. The following table shows the population projection up to 2041 for Chabua master plan area.

TABLE NO-16
Population projection of Chabua master plan area 1991-2041

YEAR	Urban Population	% of increase	Rural Population	% of increase	Master Plan Area Population	% of increase
1991	6104	-	24406	-	30510	-
2001	7230	18.45%	27911	14.36%	35141	15.17%
2011	8966	24.01%	31178	11.70%	40144	14.23%
2021	10758	19.99%	34710	11.33%	45468	13.26%
2031	15335	42.54%	48715	40.34%	64050	40.86%
2041	19912	29.85%	62719	28.73%	82632	29.01%

Source : Chabua master plan area population of 1991, 2001 and 2011 are from Census of India, Assam and 2021, 2031 and 2041 population figures estimated by Town & Country Planning, Dibrugarh.

Figure-15
Population projection of Chabua master plan area 1991-2041

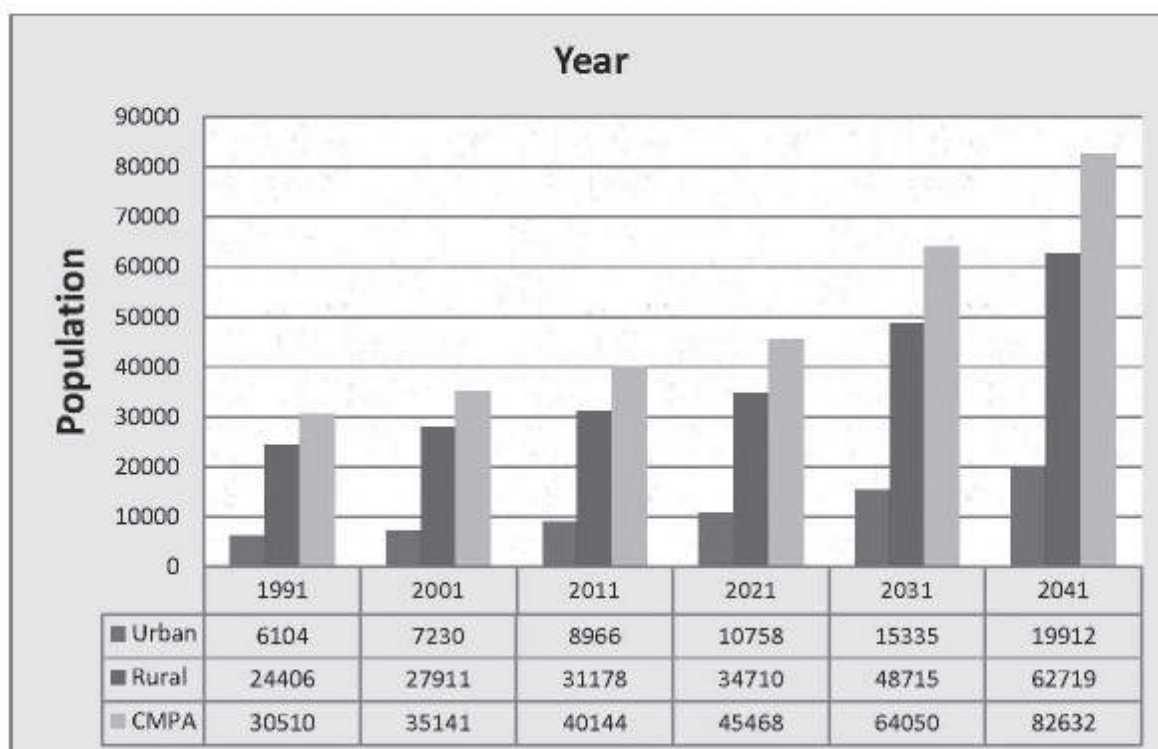
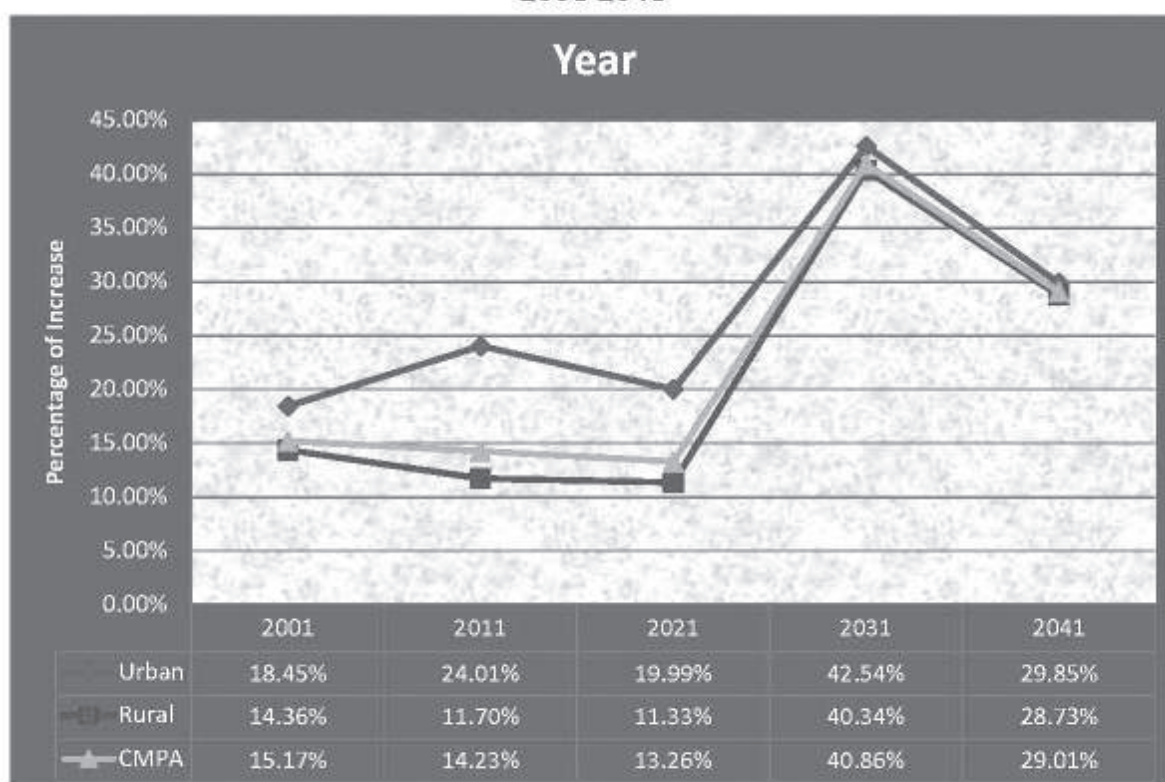


Figure-16
POPULATION PROJECTION (in %) of CHABUA MASTER PLAN AREA
2001-2041



CHAPTER-3

4. ECONOMIC BASE AND EMPLOYMENT

4.1 Formal Sector

Sector which encompasses all jobs with normal hours and regular wages and are recognized as income sources on which taxes must be paid are known as formal sector. In local terms, organised sector or formal sector in India refers to licensed organisations, that is, those who are registered. Only 6 (six) per cent of India's working population is part of the formal sector and the productivity in formal sector is high in comparison to informal sector and also offers higher wages to its employees.

Chabua master plan area has 3 (three) nos. of tea estates viz. Chabua Grant T.E., Chabua T.E. 44/151 ORR and Sealkati T.E. which produces export quality tea. These gardens provide an opportunity of employment to a large section of the population of nearby areas.



In Chabua there is a vast scope for establishing tea related ancillary industries and agricultural based industries due to the existence of tea gardens and predominance of agricultural activities. As such this plan asked the Govt. for creation of a conducive atmosphere for optimum use of agricultural products as well as tea products by private sector and public-private partnership mode to build up a sound economic and industrial base in the town.



4.2 Informal Sector

The informal sector is that part of an economy which is neither taxed nor monitored by any form of government. Activities of the informal economy are not included in the GNP. The informal sector makes up a significant portion of the economies in poor state like Assam as well as Chabua region. The informal sector of Chabua region provides critical economic opportunities for the poor and has been expanding rapidly since the 1990s. The informal sector is largely characterized by several qualities such as Easy Entry, meaning anyone who wishes to join the sector can find some sort of work which will result in cash earnings, a small scale of operations and skills gained outside of a formal education. Most workers in the informal sector, even those are self-employed or wage workers, do not have access to secure work, benefits, welfare protection or representation. The most prevalent types of work in the informal economy are home based workers and street-vendors which are most common in CMPA. Home based workers are more numerous while street-vendors are most visible.

Chabua is mainly bounded by tea garden. The region is also rich in agricultural activities. There is a good scope for setting up of various agricultural based industries. The industrial development targets as proposed above can be achieved through private sector & Governmental agencies by providing suitable industrial land with necessary infrastructure like roads, uninterrupted power, water and drainage and subsidy on power tariff, financial assistances in the form

of soft loan etc. The present concept of public-private partnership (PPP) can also be adapted for faster and smooth development of industries.

Chabua town is the nerve centre of business & service of that area. People of nearby areas use to come here to sell their products and to buy necessary goods for their domestic consumption. There are a number of markets in Chabua, such as Chabua Daily Market, Shiva Shopping Complex, Sunday Market, Chabua Meat Market, etc. These markets will not only fulfil the demand for Chabua town but also its suburbs. These markets have played an important role in the economic expansion of Chabua town.

4.3 Occupational Pattern

Occupational structure depicts the characteristics of employment for livelihood of the people living in a particular planning area. The engagement of people in agriculture, trade, commerce, industry and white-collar jobs etc. is known as the occupation and employment character. Out of total population of 40144 in 2011 for the master plan area, the number of workers is 13814 persons. The percentage of working population in urban area is 34.05% and in rural area 34.51% in 2011. The percentage of working population in rural area is slightly higher in comparison to urban area. The percentage of working population in the master plan area as a whole is 34.41% in 2011. The sector wise distribution of workers in the master plan area in 2011 is given below.

TABLE NO.-17
Sector wise distribution of workers in the master plan area in 2011

Sl.No.	Category	Urban Area		Rural Area		Chabua Master Plan area	
		No. of workers	% of total Urban workers	No. of workers	% of total Rural workers	No. of workers	% of total CMPA workers
1	Primary Sector (Agriculture)	74	2.42	2206	20.50	2280	16.50
2	Secondary Sector (Household Industry)	129	4.23	436	4.05	565	4.09
3	Tertiary Sector (Others)	2850	93.35	8119	75.45	10969	79.41
	TOTAL	3053	100	10761	100	13814	100

Source:- Calculated by T & CP, Dibrugarh

FIGURE No. 17
Sector wise distribution of workers in the master plan area in 2011

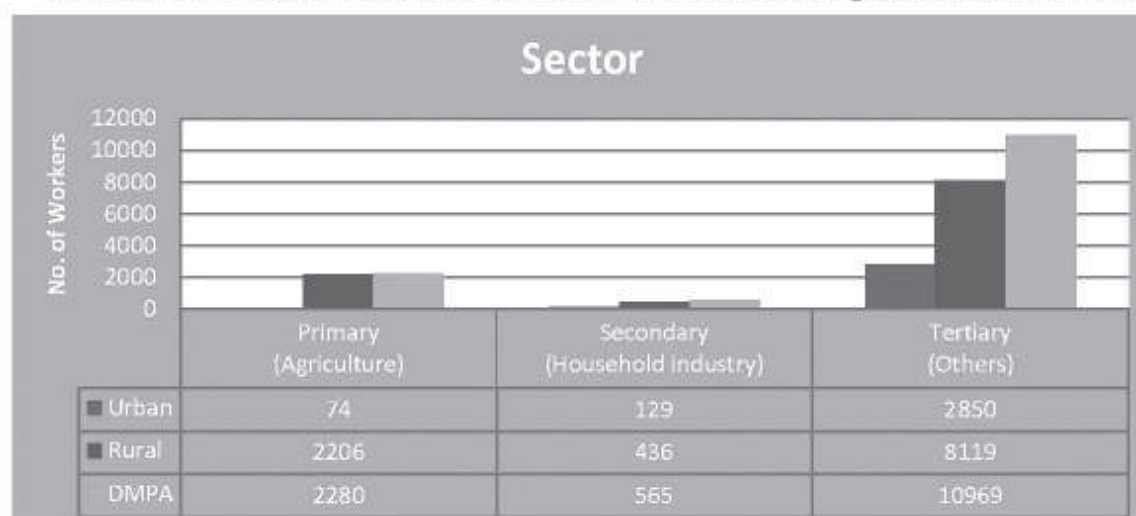
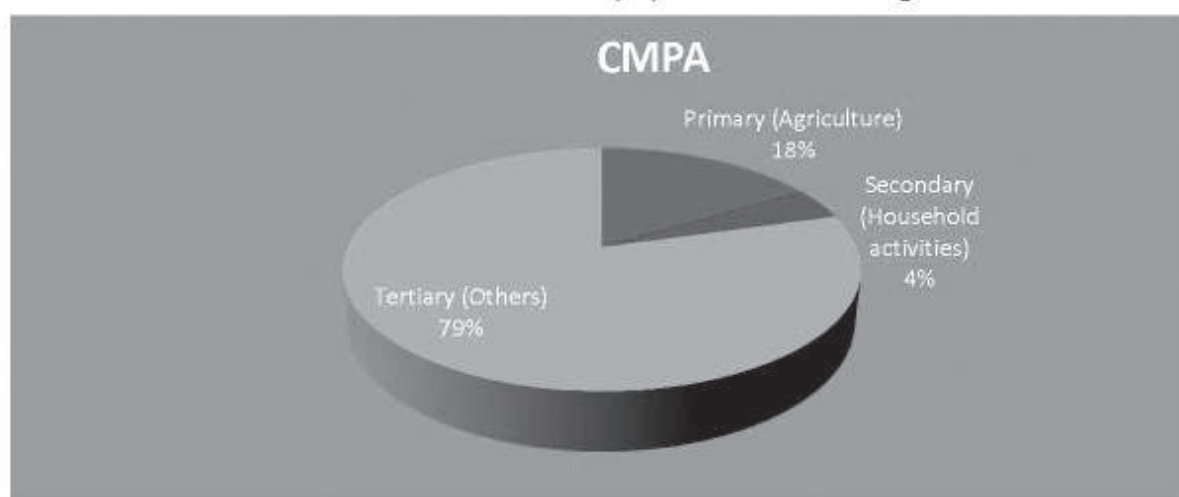


FIGURE No. 18
Sector wise distribution of workers (%) in the master plan area in 2011



Chabua is place of scenic beauty of nature with various beautiful tea gardens and pleasant weather attracts tourist to visit this place and as a result tourist sector is expanded. Expansion of micro, cottage and service industry in the town and as well as in the out skirts of the town also creates employment opportunities for many people. In view of the above, the question of livelihood can be separated on the following heads as mentioned below:-

- (a) Engagement in agriculture and tea related activities.
- (b) Engagement in industrial activities including micro and household industries.
- (c) Engagement in trade and commerce.
- (d) Serving as Govt. employee & private employee.

CHAPTER- 4

5. HOUSING AND SHELTER

5.1 Housing Scenario

Housing is the basic need of the civilized living. Despite various efforts to solve the housing problem with various policies, there is a huge gap between the supply and the demand for the housing in Assam in general and Chabua town in particular. A section of population in Chabua either have no place to live in or living under highly unhygienic, inhuman condition and deprivations. Lack of privacy, absence of minimum basic amenities, use of substandard building materials and unhygienic surroundings dominates the scene of settlements. In Chabua, while the housing problem in the rural areas, by and large is qualitative in nature and the problem in the urban areas is largely quantitative. The uncontrolled growth of population in urban areas due to migration and other factors have created a high magnitude of housing and infrastructure problem. Due to migration of rural population to the town, available vacant spaces in the urban areas are slowly being converted to unplanned, unhygienic built up area. Moreover, cost of land in the urban area is also increasing. People in the low and middle income group even find it difficult to acquire the land at the present prevailing cost.

The housing pattern of Assam, including Chabua region have living habits of such a kind that is different from other states and region of the country. There is a general feeling in Chabua region that the basic problem is up gradation of existing units and there is very little need to be done to provide a roof for the utterly shelter less population as the category of such household is very negligible in the region.

An average household size in CMPA has 4.89 persons. The household size is higher in urban area (5.08 persons) as compared to rural areas (4.80 persons).

It is true that development of our country is dependent on the physical and mental health of the people. People who sleep on streets or who live in unhygienic houses cannot fully develop emotionally, intellectually, economically, culturally or as a family. In fact, inadequate and insecure shelter can lead to social and political instability which eventually hampers economic development of our country.

To address this problem, Government of India introduced a new Housing scheme in 2014 namely Pradhan Mantri Awas Yojana (housing for all by 2022). If this scheme does works it would at least help to reduce India's major contribution with one of the highest homeless populations in the world. Under the PMAY, the main proposal was to construct 20 million homes for those people belonging to the Low Income families and Economically Weaker Sections in the identified urban and semi – urban areas by 2022. Accordingly, Chabua Municipal Board is also working to provide houses to the poor as per guideline.

5.2 Housing Supply Mechanism

Housing supply is the main role of the State Government to improve living condition to the inhabitants either by directly providing houses or by financial assistance. The Government has adopted different policies to solve the housing problems especially for poor and low income group. However, housing supply must address all social groups in the state including housing in urban areas, semi-urban areas and rural areas. In the recent years private building's and developer's come forward to solve the problems of housing in urban areas of the state by constructing flat. Such practices have not been seen in Chabua recently. In the rural areas of master plan a few house has been constructed under centrally sponsored housing scheme. The plan recommends that State Housing Board or any other Govt. agency should come forward to build housing colonies at Chabua for all sections of people of the state considering its unique scenic beauty of tea gardens.

5.3 Housing Condition, Type of Structure etc.

The following table's shows the number and percentage distribution of population and household in respect of different living condition such as structure of house, source of lighting source of drinking water, type of fuel used for Cooking, Banking and Specified assets, Drainage connectivity and availability of kitchen.

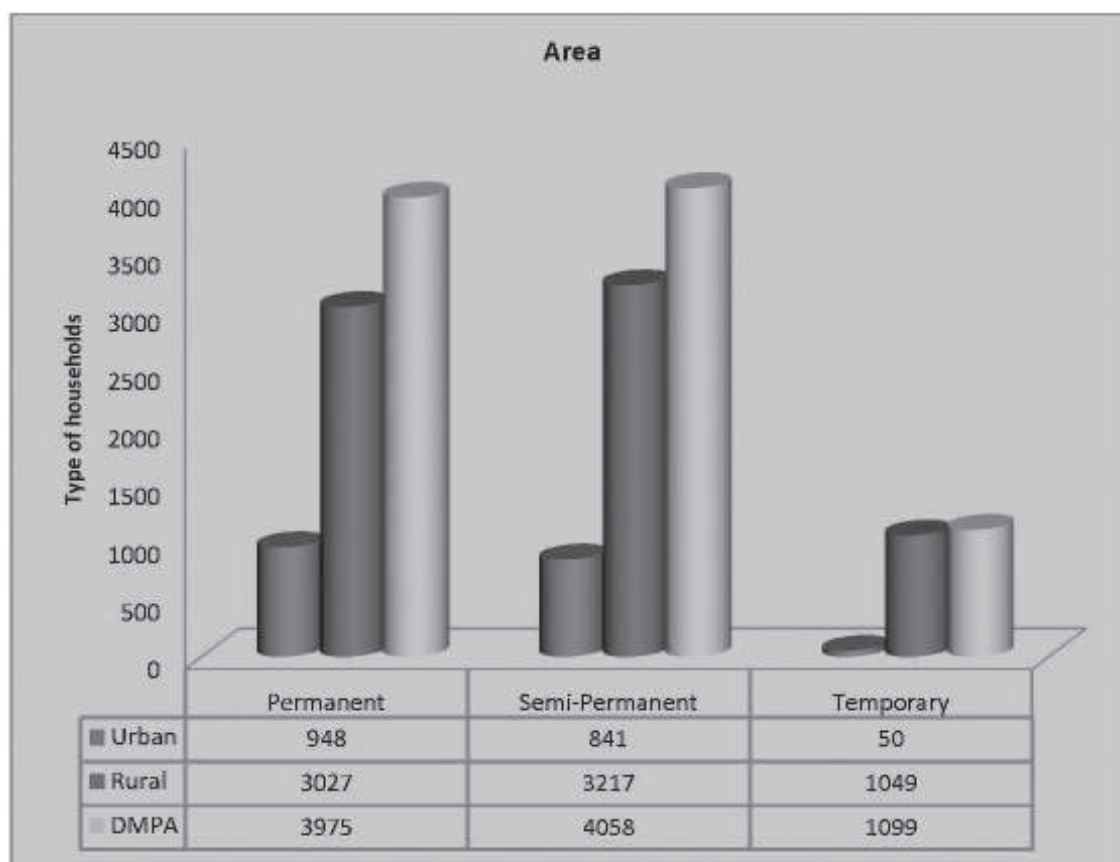
TABLE NO.18
Distribution of households living in permanent, semi-permanent and temporary houses in 2011 for Chabua master plan area

Name of Area	No. of Households	Permanent	Percentage	Semi-Permanent	Percentage	Temporary	Percentage
Urban	1839	948	51.55	841	45.73	50	2.72
Rural	7293	3027	41.61	3217	44.11	1049	14.28
CMPA	9132	3975	43.53	4058	44.44	1099	12.03

Source :- Census of India 2011

FIGURE NO.19

Distribution of households living in permanent, semi-permanent and temporary houses in 2011 for Chabua master plan area

**FIGURE NO.20**

Percentage Distribution of households living in permanent, semi-permanent and temporary houses in 2011 for Chabua master plan area

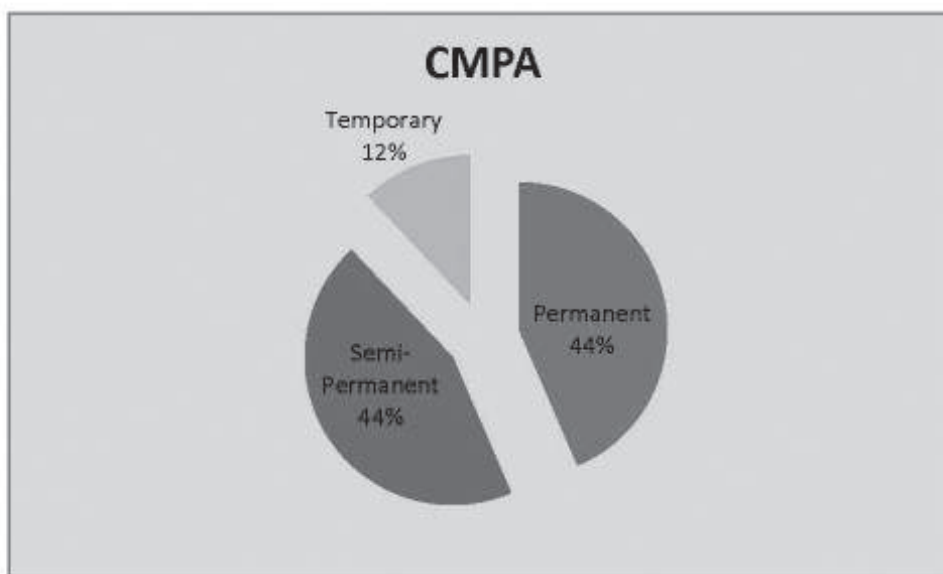


TABLE NO. 19
Number and % of households by main source of lighting in 2011 for Chabua Master Plan area

Source of lighting	Urban	Percentage	Rural	Percentage	CMPA	Percentage
Electricity	1688	91.79	2922	40.07	4610	50.48
Kerosene	144	7.83	4336	59.45	4480	49.06
Solar	5	0.27	20	0.27	25	0.27
Other Oil	0	0.00	4	0.05	4	0.04
Any other	1	0.05	7	0.10	8	0.09
No lighting	1	0.05	4	0.05	5	0.05
TOTAL	1839	100.00	7293	100.00	9132	100.00

Source :- Census of India 2011

FIGURE NO.21
Number of households by main source of lighting in 2011 for Chabua Master Plan area

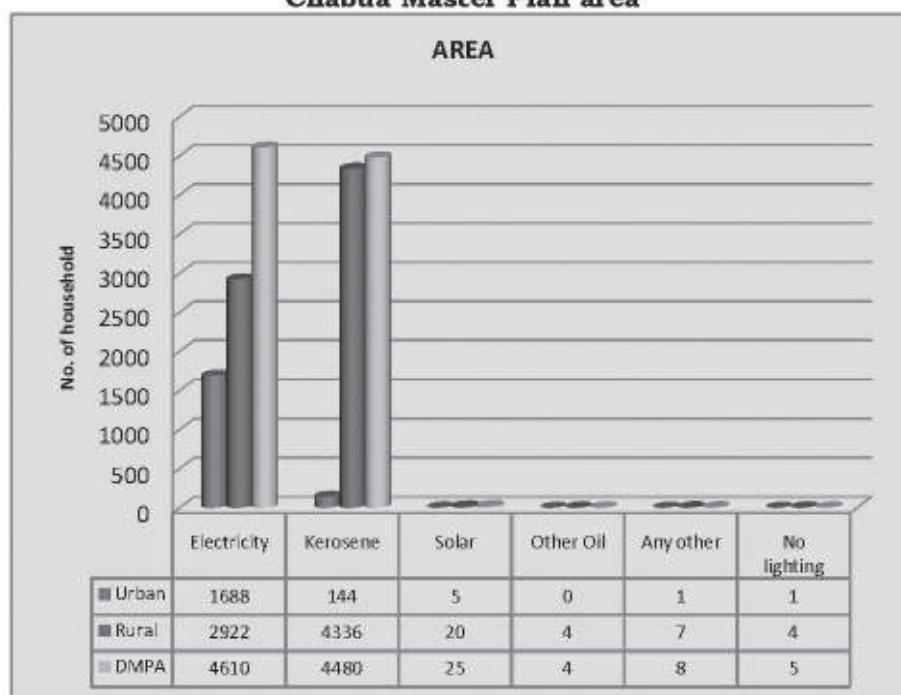


TABLE NO. 20
Number and percentage of households by main source of drinking water in 2011
for Chabua Master Plan

Source of drinking water	Urban	Percentage	Rural	Percentage	CMPA	Percentage
Tap water from treated source	38	2.07	166	2.28	204	2.23
Tap water from untreated source	117	6.36	65	0.89	182	1.99
Covered well	2	0.11	33	0.45	35	0.38
Uncovered well	0	0.00	291	3.99	291	3.19
Hand pump	1233	67.05	4718	64.69	5951	65.17
Tubewell / borehole	448	24.36	1871	25.65	2319	25.39
River/Canal	0	0.00	55	0.75	55	0.60
Tank/Pond	1	0.05	15	0.21	16	0.18
Other sources	0	0.00	79	1.08	79	0.87
TOTAL	1839	100.00	7293	100.00	9132	100.00

Source :- Census of India 2011

FIGURE NO. 22
Number of households by main source of drinking water in 2011 for Chabua Master Plan

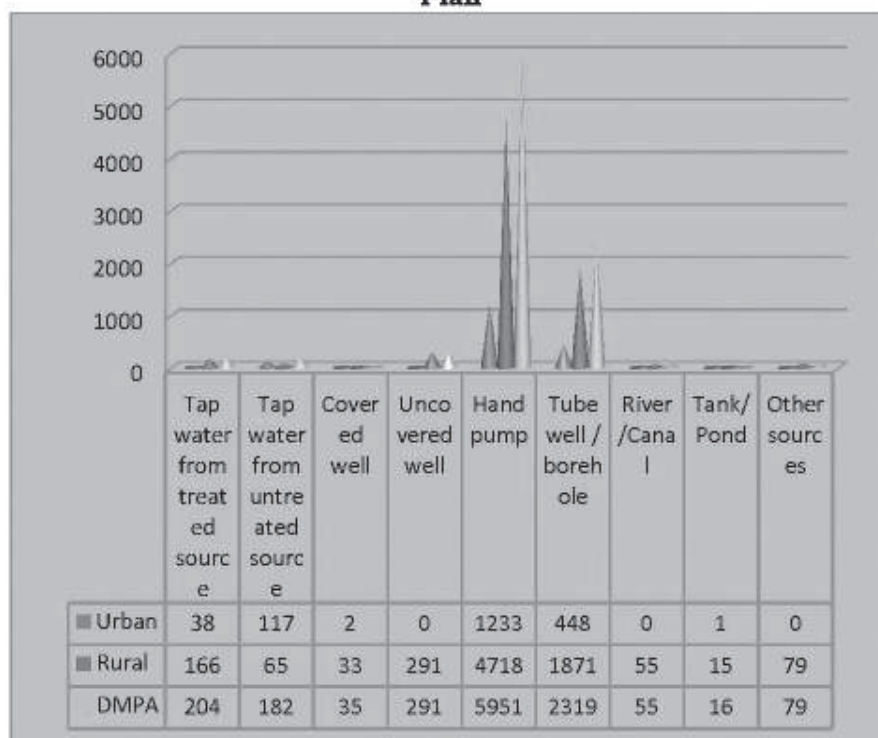


FIGURE NO. 23
Percentage of households by main source of drinking water in 2011
for Urban, Rural and Chabua Master Plan

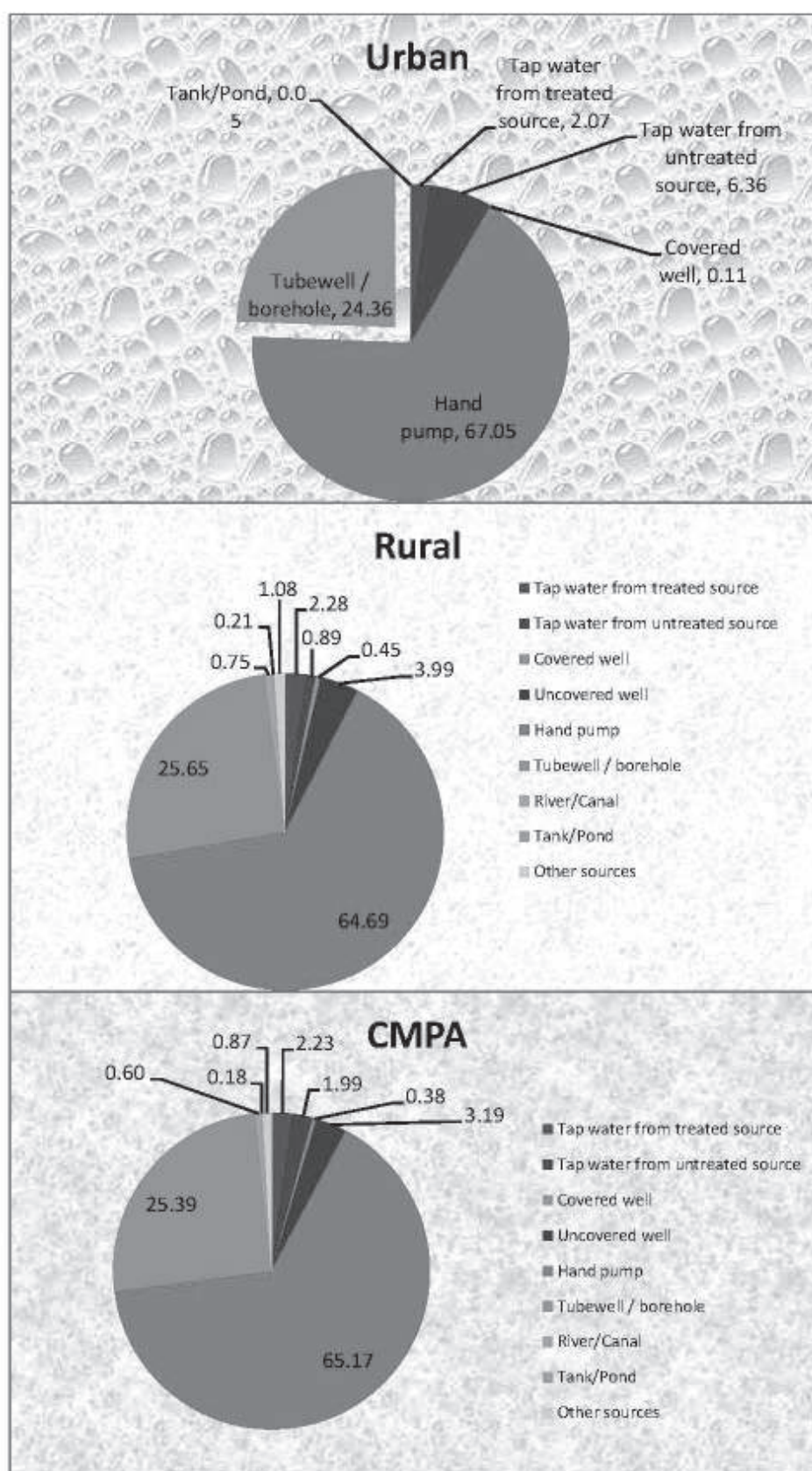


TABLE NO. 21
Number and percentage of households by type of fuel for cooking in 2011 for
Chabua Master Plan

Type of Fuel used for cooking	Urban	Percentage	Rural	Percentage	Total	Percentage
Firewood	556	30.23	6228	85.40	6784	74.29
Crop residue	27	1.47	155	2.13	182	1.99
Kerosene	72	3.92	21	0.29	93	1.02
LPG/PNG	1173	63.78	851	11.67	2024	22.16
Any other	6	0.33	21	0.29	27	0.30
No cooking	5	0.27	17	0.23	22	0.24
TOTAL	1839	100	7293	100	9132	100

Source :- Census of India 2011

FIGURE NO. 24
Type of fuel for cooking in 2011

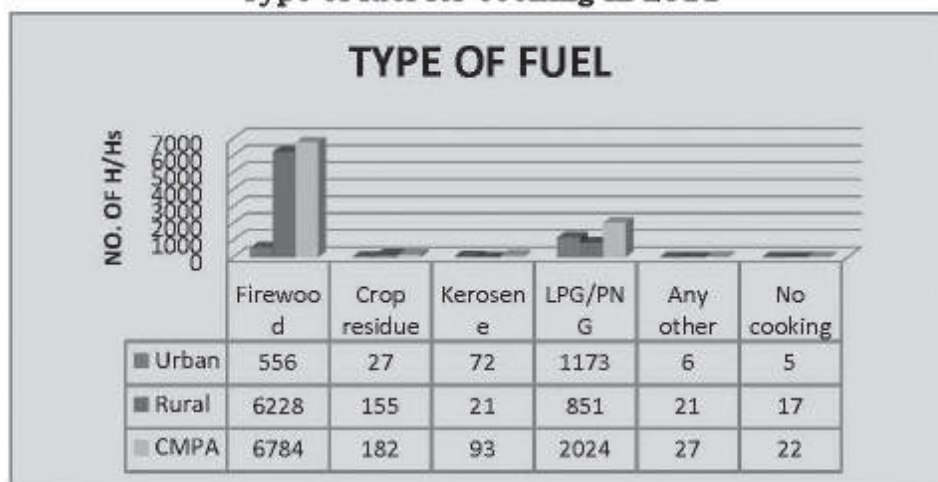


FIGURE NO. 25
Type of fuel for cooking in 2011 (%)

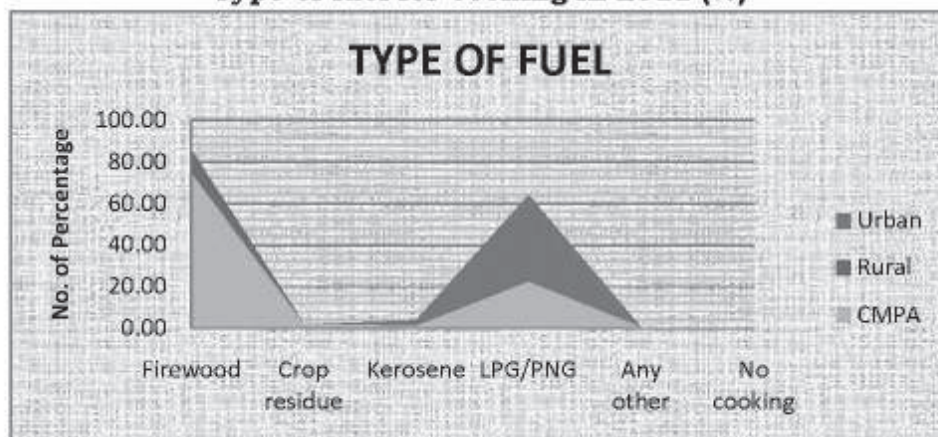


TABLE NO.-22

Number and percentage of households availing banking services and number of households having each of the specified assets in 2011 for Chabua Master Plan

Banking services and specified assets	Urban	Percentage	Rural	Percentage	Total	Percentage
Total number of households availing banking services	1318	71.67	3014	41.33	4332	47.44
Radio/ Transistor	387	21.04	1619	22.20	2006	21.97
Television	1326	72.10	2743	37.61	4069	44.56
Computer/ Laptop	189	10.28	598	8.20	787	8.62
Landline telephone	65	3.53	174	2.39	239	2.62
Mobile telephone	1263	68.68	2676	36.69	3939	43.13
Bicycle	1109	60.30	4864	66.69	5973	65.41
Scooter / Motorcycle/ Moped	389	21.15	869	11.92	1258	13.78
Car/Jeep/ Van	139	7.56	236	3.24	375	4.11
None of the specified assets	124	6.74	1462	20.05	1586	17.37

Source :- Census of India 2011

Figure No-26

Number of households availing banking services and number of households having each of the specified assets in 2011 for Chabua Master Plan

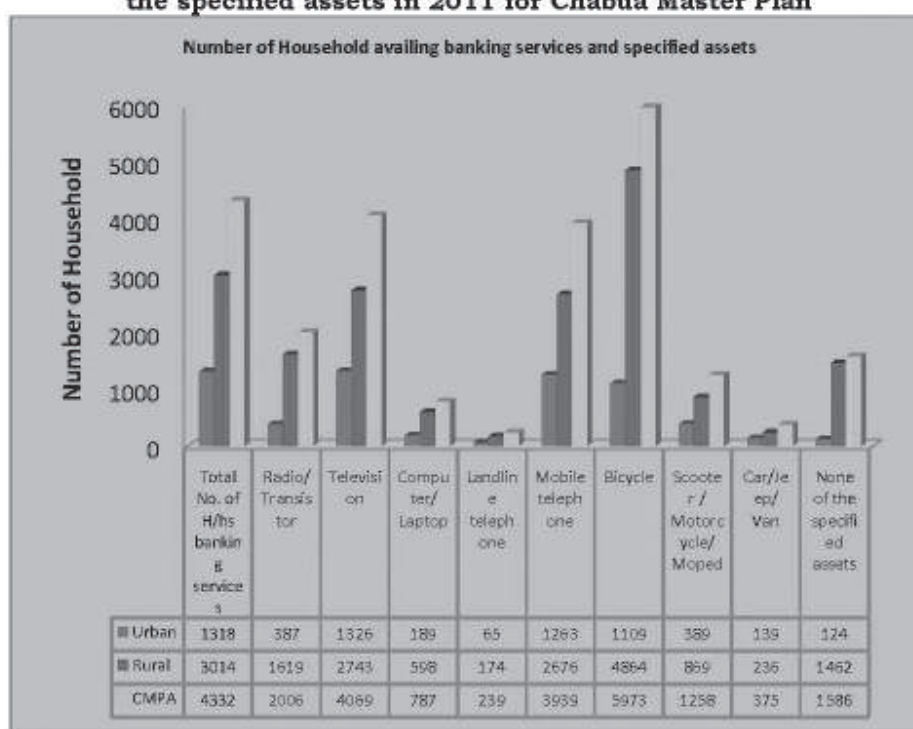


TABLE NO. 23
Number and % of households by type of drainage connectivity
for waste water outlet in 2011 for Chabua Master Plan area

Type of Drain	Urban	Percentage	Rural	Percentage	Total	Percentage
Closed drainage	211	11.47	174	2.39	385	4.22
Open drainage	688	37.41	2283	31.30	2971	32.53
No drainage	940	51.11	4836	66.31	5776	63.25
TOTAL	1839	100	7293	100	9132	100

Source :- Census of India 2011

FIGURE NO.27
Percentage of households by type of drainage connectivity
for waste water outlet in 2011 for Chabua Master Plan area

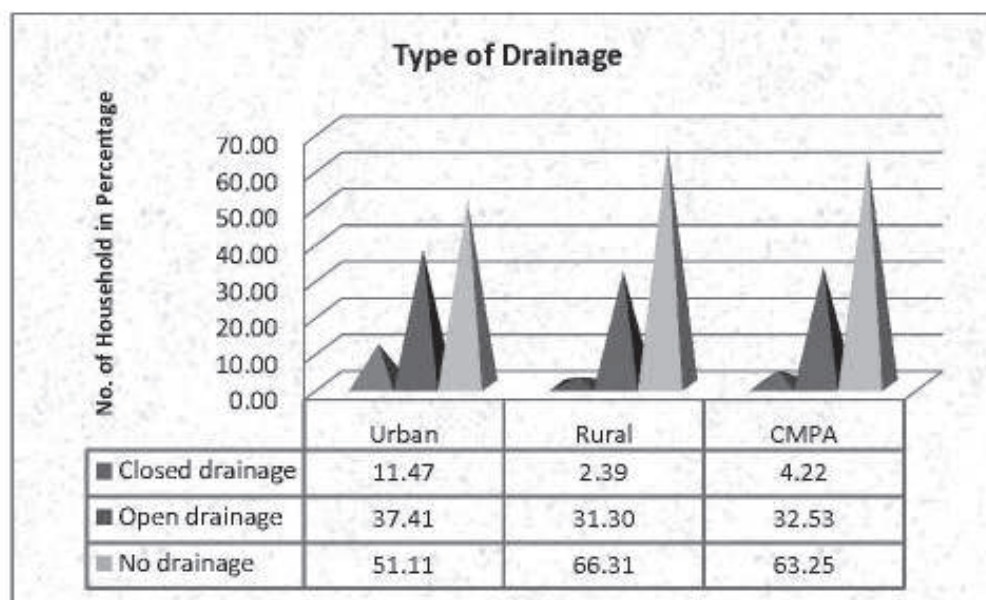


TABLE NO.-24
Number and % of households by availability of kitchen facility in 2011
for Chabua Master Plan area

Cooking pattern		Urban	Percentage	Rural	Percentage	CMPA	Percentage
Cooking inside house	Has kitchen	1686	91.68	6421	88.04	8107	88.78
	Doesn't have kitchen	113	6.14	537	7.36	650	7.12
Cooking outside house	Has kitchen	32	1.74	180	2.47	212	2.32
	Doesn't have kitchen	3	0.16	138	1.89	141	1.54
No cooking		5	0.27	17	0.23	22	0.24
TOTAL		1839	100	7293	100	9132	100

Source:- Census of India 2011

FIGURE NO.-28
Number of households cooking inside house in CMPA in 2011

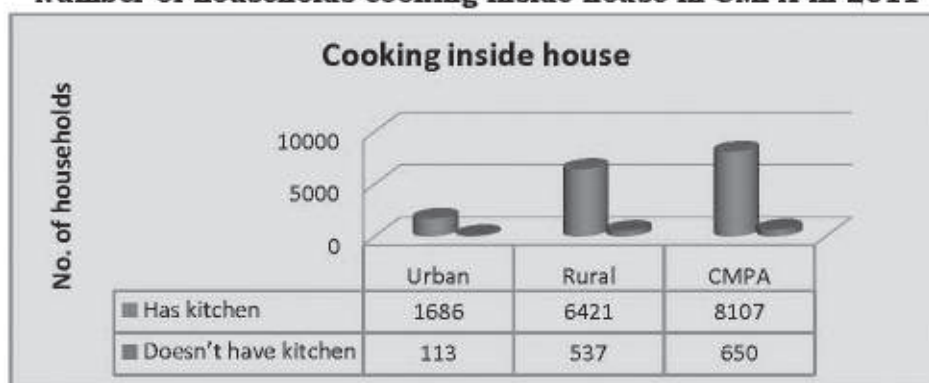
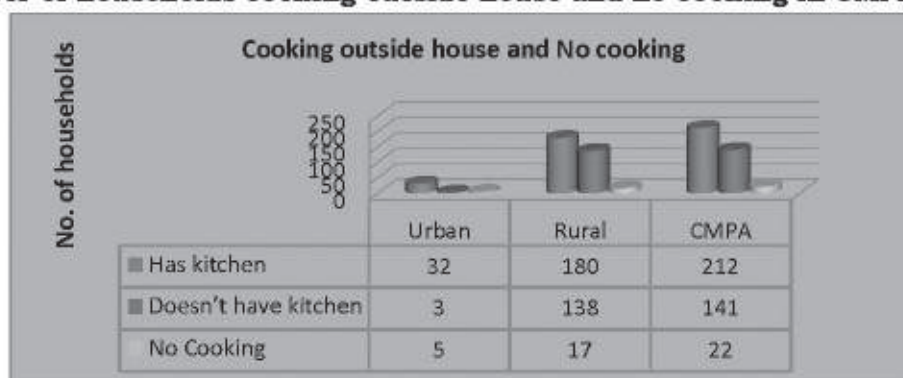


FIGURE NO.-29
Number of households cooking outside house and no cooking in CMPA in 2011



4.4 Slum-Squatters and informal housing share :

Urbanization can be defined as a process which reveals itself through temporal, spatial and sectoral changes in the demographic, social, economic technological and environmental aspects of life in a given society. Urbanization is a progressive concentration of population in urban unit. Urbanization is a process experienced in economically advanced as well as developing countries, cities and towns as centres of agglomeration, with fast economic growth and tertiary job opportunities. In developing countries the rate of urbanization is very fast and it is not accompanied by industrialization but by the rapid growth of service sector in the economies. During the last three decades, rapid urbanization has been one of the most crucial socio- economic changes of our societies. As population grows more and more, people move into the cities in search of a better life, causing more housing shortage, paucity of civic amenities leading to poverty and in the process creating bigger slums in cities.

But even where urbanization is still low, people are moving to towns and cities. The new arrivals and many long term residents too are crowded together in over populated houses, dismal tenements and teeming slums. With the growth of cities, the cost of housing and infrastructure is increasing on the one hand and lack of affordable housing facility on the other hand. These have often forced the urban poor to rely on or create their own informal infrastructure, giving way to dramatic growth of slums in urban centres.

Urbanization might also force some people to live in slums when it influences land use by transforming agriculture land into under areas and increase the land value. During the process of urbanization, some agriculture land was used for additional urban activities. That is why as urbanization grows slums also grow in India as well as Assam at a faster rate. As an observation, most of the small Indian towns are much congested and unhygienic although their effect on an individual is mitigated by the openness of the environment.

As per information received from Chabua Municipal Board, there is no notified slum pockets in the municipal area, inspite of that there is an every possibility of the creation of slum in the town near future due to the increase of the population and industrialization and as such it is necessary for the concern authority to stop such informal habitat in future.

4.5 Housing Stock, Shortage and Need Assessment

There are about 1839 nos. of houses within urban area and 7293 nos. of houses in rural area of Chabua master plan in the year 2011. As a whole in master plan area the number of households are 9132 nos. Since there are 40144 persons in CMPA in the year 2011 and the above housing figure shows that an average of 4.40 persons per household.

To find out the housing requirement for future, a detailed study of family size level of obsolescence, existing shortage etc. are necessary. However, on the

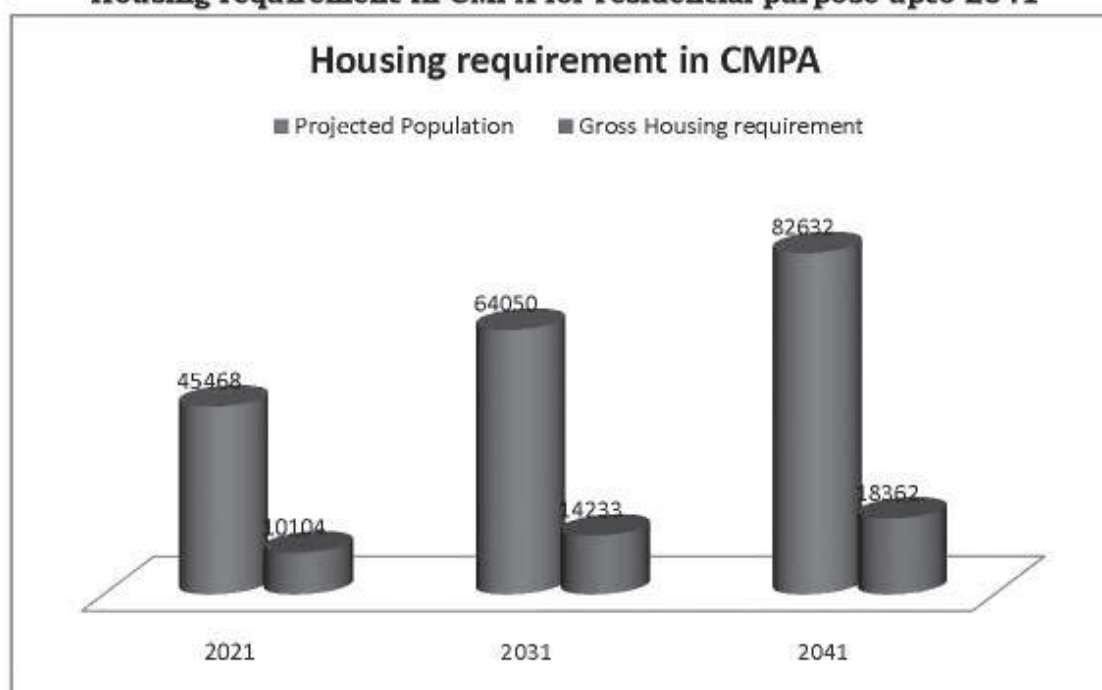
basis of projected population and household size of 4.5 persons the gross housing need is assessed below :

TABLE No-25
Housing requirement in CMPA for residential purpose upto 2041

Year	Projected Population	Gross Housing requirement
2021	45468	10104
2031	64050	14233
2041	82632	18362

Source :- Calculated by TCP, Dibrugarh

FIGURE No.30
Housing requirement in CMPA for residential purpose upto 2041



Since 9132 nos. of houses have been used for residential purposes in 2011 in Chabua master plan area and the above table reveals that gross housing requirement in the year 2021 was 10104 no. of houses. As such, in the year 2021 itself the additional requirement of housing for the population of 45468 was 972 nos. of houses.

CHAPTER-5

5 TRANSPORTATION

5.1 Network of Roads

Urban road network is considered as engines of economic growth. In some areas of the town the road width is not sufficient and well equipped. Chabua-Tengakhat road level crossing towards Tengakhat and College road is narrow and remains always busy and requires immediate improvement. The roads within the residential areas in Chabua Municipal Board area are too narrow.



Widening of these roads is urgently necessary.

For smooth traffic movement in Chabua master plan area the plan provides 112 hectares of land, which constitute 1.86 % of the master plan area and 4.32 % of total developed area for circulation purposes. In this plan, emphasis has been given on the following aspects for effective transportation system in Chabua master plan area.

- (i) Optimum use of the existing transportation system through improved traffic operation and controls.
- (ii) Improvement of the existing road network through strengthening and widening.
- (iii) Improvement of Railway level crossing.
- (iv) Provision for adequate parking facilities.
- (v) Development of new roads and other transport facilities.

The plan recommends development of road infrastructure as per table given below:

TABLE NO :- 26
CATEGORY OF ROADS

Category of roads	Name	Recommended width (in feet)
Major	Assam Trunk Road (NH-15)	70-80
	Dibrugarh-Chabua-Tinsukia Bypass road	80-90
Arterial	Chabua-Tengakhat Road	40-50
	College Road	40-45
	Dinjoy-Balijan Road	35-40
	Deodhai-Koilabari road	35-40
	Hatkhula road	35-40
	MES-Balijan road	40-45
	Niz-Chabua road	35-40
	Niz Chabua Morankari Komargaon road	35-40
Sub- Arterial	Ramdhenu path	25-30
	Parijat path	25-30
	Krishna nagar road	25-30
	Kalibari road	25-30
	Durga mandir path	25-30
	Church road	25-30
	Dinjoy Tea Factory road	25-30
	Hatipati path	25-30
Other Road	Chabua Kumargaon road	30-35
	--	Min 20 & 12 for single plot

Source :- Prop. By T & CP, Dibrugarh

5.2 Overview of Critical Roads and Improvements

Chabua is well connected with the rest of the country by roads and railways. The N.H.-15 and Dibrugarh-Chabua-Tinsukia Bypass road have connected Chabua with other places as shown below:-

- Chabua to Tinsukia
- Chabua to Dibrugarh
- Chabua to Tengakhat
- Chabua to Sivsagar, Jorhat via Dibrugarh
- Chabua to Doomddoma, Digboi, Margherita via Tinsukia

Chabua is also connected with railway network to Dibrugarh, Tinsukia and Ledo. Beside train plying of taxis, buses, winger and trucks are playing a major role in transporting passengers and goods to and from Chabua.

Chabua town has gained importance in the field of tea-industry and business owing to tea and other industries and existence of agricultural products in nearby areas. This has resulted in to increase of vehicles on the roads of Chabua town. On the other hand, a good number of ASTC buses, private buses and winger ply through the town. The buses and small vehicles plying through Chabua town follow the following routes:

- a) Tinsukia to Guwahati via Chabua
- b) Dibrugarh to Tinsukia, Dhola via Chabua
- c) Dibrugarh to Digboi, Margherita, Ledo via Chabua
- d) Dibrugarh to Namsai, Roing via Chabua

5.3 Bus Transport Terminals

There is no organized bus stand at Chabua. Presently ASTC buses and other buses stop in front of Chabua Municipal Board office along the NH-15 roadside. This stoppage serves intra - urban traffic, i.e. regional traffic. This stoppage creates lots of traffic congestion in the area.



At present 1 Auto stand is located near the Chabua-Tengakhat road by the side of NH-15 and another in front of Chabua railway station. These stands also creates congestion and obstruction to the smooth flow of traffic.



In Chabua town the surface condition of the road is not up to the mark. The roads appear to be incapable of taking additional traffic load. Access roads are narrow with poor surface. Most of the traffic is generated from St. Luke's Hospital to the point of MES tinali. But the entire area does not have organized parking space.

Keeping in view the above, the plan recommends the proposal for Bus stand at Hatkhula bongali gaon (by the side of NH-15).

5.4 Freight Zones Logistics

Presently there is no truck terminus at Chabua. So the plan proposes one truck terminus and Logistic Hub at Dinjoy Chapori gaon near ASEB Sub-station (by the side of Bypass).



5.5 Footpaths and Bicycle Tracks

Footpaths are normally designed for pedestrian for pleasant and comfortable walking. In Chabua except in by the side of NH-15 (from St. Luke's

Exclusive lane for slow moving vehicles, pedestrians along with spaces for street vendors are also essential for overall development of a town. The hawkers and street vendors also play an important role in urban economy. The notification of vending and no vending zone by the authority is mandatory as per the provisions of the Street Vendors Act, 2014. This improves the capacity of the lanes designed for motorized vehicles and increases the safety of slow moving vehicles and pedestrians.

A grayscale map of Chabua, Assam, showing a route from a starting point to Balijan Pani Era. A white callout box indicates a distance of 4.5 km and a travel time of 6 minutes by car. The map includes labels for various locations such as Kath Gaon, Maricha Gaon, Chabua, and Balijan Gaon, as well as landmarks like D.D.R. College and Chabua Police Station.

The width of footpath as per URDPFI guidelines is follows:

TABLE NO:-27
WIDTH OF FOOTPATH

Sl. No.	Description	Width(mtr)
1	Minimum free walkway width in residential/mixed use areas	1.8
2	Commercial/Mixed Use Areas	2.5

The URDPFI Guideline for cycle /NMT track are given in the following table:

TABLE NO:- 28
CYCLE TRACK

Sl. No.	Arterial Roads	SUB Arterial Roads	Distributary Road	Access Roads
Non-Motorized Vehicle	Segregated cycle track	Segregated cycle track	Cycle lane	Mixed/traffic
Location	Between carriageway or street parking and footpath on either edge of the carriageway	Between carriageway or street parking and footpath on either edge of the carriageway	On the edge of the carriage ,adjacent to the footpath or parking	Not applicable
Gradient	1:12-1:20	1:12-1:20	1:12-1:20	1:12-1:20
Lane width	2.2 to 5.0m	2.2 to 5.0m	2.2 to 5.0m	Mixed with motorized vehicular traffic
Minimum width	2.5 for a two lane cycle track and 1.9m for a common cycle track and footpath	2.0 for a two lane cycle track and 1.7m for a common cycle track and footpath	1.5m	1m(painted)

5.6 Parking

At present, there is no organized parking space for the cars, two wheelers in the market area. The cars are generally parked on the main road of the town. The roads are already overcrowded with traffic and further encroachment on road surface by cars and two wheelers has resulted obstructed traffic congestion.

The recommended equivalent car space (ECS) required for different type of vehicles as per **URDPFI** guidelines are given in the following table for design of parking areas.

TABLE NO:-29
PARKING SPACE

Sl. No.	Vehicle type	ECS
1	Car / taxi	1.00
2	Two Wheeler	0.25
3	Auto Rickshaw	0.50
4	Bicycle	0.10
5	Trucks/Buses	2.5
6	Emergency Vehicles	2.5
7	Rickshaw	0.8

5.7 Areas with Major Traffic congestion & Parking issues, Accident prone area

The maximum inter -town traffic volume is generated on the road starting from St. Luke's Hospital and moving towards Tinsukia upto MES tinali. This is the most vital link for the town. The second inter town traffic generating road is from MES tinali upto Bypass. The third inter town traffic generating road is Chabua-Tengakhat road.

The presence of mixed traffic on narrow roads has accelerated traffic congestion in market area. The town has mainly two accident prone areas, namely the junction point of Chabua-Tengakhat road and MES tinali. Proper road signage and marking in the road in these areas is the need of the hour.

5.8 Improvement of Rotary & Junctions

Improvement of all road junctions as per IRC guidelines is urgent and important for improving the traffic scenario. For smooth traffic in NH-15 and

roads leading towards Tengakhat, this plan proposes a T-type fly-over at the junction point of NH-15 and Chabua-Tengakhat road.

5.9 Signage, Availability & Requirement

The ULB, traffic and other concerned departments will assess the requirement of Signage and accordingly install the signage as per the rules and regulations for the beautification of the town as well as smooth flow of traffic and public convenience.

5.10 Major Proposals

- I. One truck stand and Logistic Hub is proposed at Dinjoy Chapori gaon near ASEB Sub-station (by the side of Bypass).
- II. This plan proposes a bus stand with all facilities at Hatkhula bongali gaon (by the side of NH-15).
- III. This plan proposes a T-type fly-over at the junction point of NH-15 and Chabua-Tengakhat road.
- IV. Considering the scenic beauty of the town, the plan recommends plantation along the major roads and development of traffic points to augment the aesthetic beauty of the town.
- V. This plan proposes a cycle track in Chabua bypass road from Deodhai Kapohuwa gaon to Dinjoy Baliyan road.

CHAPTER-6

6 INFRASTRUCTURE, PUBLIC UTILITY & SERVICES

6.1 Physical Infrastructure

6.1.1 Water Supply

In Chabua master plan area there are 5 existing water supply schemes and for the rest of the town and rural areas, the only source of water is tube well and the ring wells as ground water and surface water is readily available at Chabua and its adjoining areas. Though the tube well and ring well are efficiently functioning, it will no longer be considered as free from contamination due to presence of a number of pit latrines. A comprehensive water supply scheme with treatment plant covering the population up to 2041 is the need of the hour.

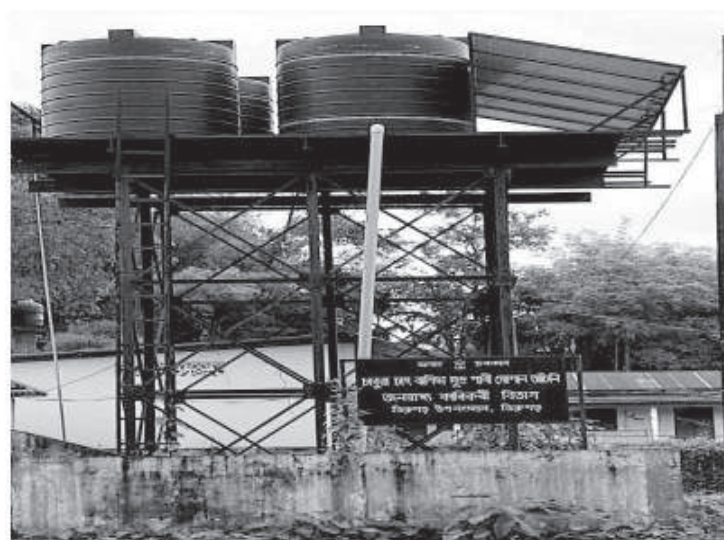
The objective of a public protected water supply system is to supply safe and clean water in adequate quantity, conveniently and as economically as possible. Rising demand of water due to rapid urbanization is putting enormous stress while planning the water supply system for an area; it is evident to consider water conservation aspects, which may be possible through optimal use of available water resources, prevention and control of water and effective demand management.



Moricha Koiwarta gaon Water Supply Scheme



Balijan Paniera Water Supply Scheme



Chabua Tea Estate Mini Water Supply Scheme



Chabua town Water Supply Scheme



6.1.2 URDPFI Guideline's for Water Requirement

As per URDPFI guidelines the norms for water requirement for institutional buildings are given below:-

TABLE NO-30
REQUIREMENT FOR INSTITUTIONAL BUILDINGS

Sl.No	Institutions	Litters per head per day
1.	Hospitals (including laundry)	
a)	No. of beds exceeding 100	450 (per bed)
b)	No. of beds not exceeding 1000	350 (per bed)
2.	Hotels	180 (per bed)
3.	Hostels	135
4	Boarding Schools	135
5	Restaurants	70 (per seat)
6	Day school / colleges	45
7	Offices	45
8	Cinema, concert halls and theatre	45

In addition to the above the fire- fighting water demand is also as a function of population. It is desirable that one-third of fire fighting requirements from part of the service storage. The balance requirement may be distributed to several state tanks of strategic points. These strategic points may be filled from nearby pond streams or canals by water tanker's wherever feasible.

The plan also recommends preparation of a comprehensive potable water supply scheme as per guideline of CPHEEO manual of Govt. of India to cater the needs of the estimated population of 82632 up to 2041 by a competent authority.

6.1.3 Drainage system

The drainage system differs in Chabua Municipal Board area and rural areas within master plan. The drainage system in Chabua municipal area is relatively good condition as compared to rural areas.



Covered Drain

The existing natural drains of master plan area are not properly defined and are slowly being encroached by the growing population. The existing drainage of these areas does not have a proper slope resulting in water logging at different areas during rainy season. Most of the drains in rural areas of master plan are kutchha drains and not link up with natural channels and also do not have sufficient cross section to drain out surface water after heavy shower. As such, it is an urgent necessity of Chabua Municipal Board and concerned authorities to construct few drains at certain location of the town and in rural areas to drain out storm water. It is also important on the part of CMB for the development of the existing natural stream which is running through the town for removing the water logging problem in the town as well as in residential areas. The existing infrastructure conditions of the town reveals that the priority of the town is an efficient storm water drainage system where by storm water that accumulates within the populous localities and commercial areas and drained out through scientifically designed storm water drainage system. This plan also recommends hierarchy of drainage system for the entire master plan area because almost 63.25% households in the master plan area (as per Census of 2011) still not connected with the drainage system. As such, it is necessary to prepare a drainage master plan for Chabua by the concerned authority to solve the problem of storm water and water-logging in the town and its adjoining areas.

6.1.4 Sanitation

In Chabua urban area almost 67.10% household use septic tank and in rural area only 18.89% households use septic tank in 2011. In the Master Plan area as a whole the percentage of households use septic tank are 28.60%. In the Master Plan Area, almost 22.35% household use pit latrine without slab which are not conducive for health and environment. This type of condition is prevailed in all over India. As such, The Government of India in the year 2014 introduced the Swachh Bharat Mission (SBM) which is being implemented by the Ministry of Urban development and Ministry of Drinking and sanitation for urban and rural areas respectively. The main objective of the mission is – Elimination of open defecation, Eradication of manual scavenging, Modern and scientific Municipal Solid Waste Management, to effect behavioural changed regarding healthy sanitation practices, generate awareness about sanitation and its linkage with public health, capacity Augmentation for ULB's.

Swachh Bharat Mission (SBM) will improve the health conditions of every Indians. This practice will be able to prevent many types of diseases in the country and we will be able to have a happy and healthy society. SBM can be able to build a better eco-friendly environment in the country and can give better life to our upcoming generations.

SBM will also help in generating employment through tourism and boos India's Gross Domestic Product (GDP).

Unhygienic condition's is one of the major root courses of diseases/illness. Any disease or illness has financial impact both in terms of expenditure and potential revenue earning. As such, SBM will have positive impact on India's

health care sector. SBM will plug the loss due to unhygienic and lacks of cleanliness and will help to ease burden on existing health care facilities.

SBM will lead to Health India which in turn increases productivity of Indians. High productivity means high earning potential. Under current economic conditions, India desperately need Foreign Direct Investment (FDI) for this the country must be clean.

SBM will benefit socially and financially each & every citizen of India. If we want financial growth then we have to collectively make SBM a roaring success in future. SBM is one of the critical links towards economic success of India.

Under SBM it is estimated that about 20% of the urban household in towns, who are currently practicing open defecation are likely to use community toilets as a solution due to land and space constraints in constructing individual household latrines. For this component beneficiaries shall be groups of household in urban area whose members practice open defecation and who do not have access of two household toilets and for whom the construction of individual household toilet is not feasible.

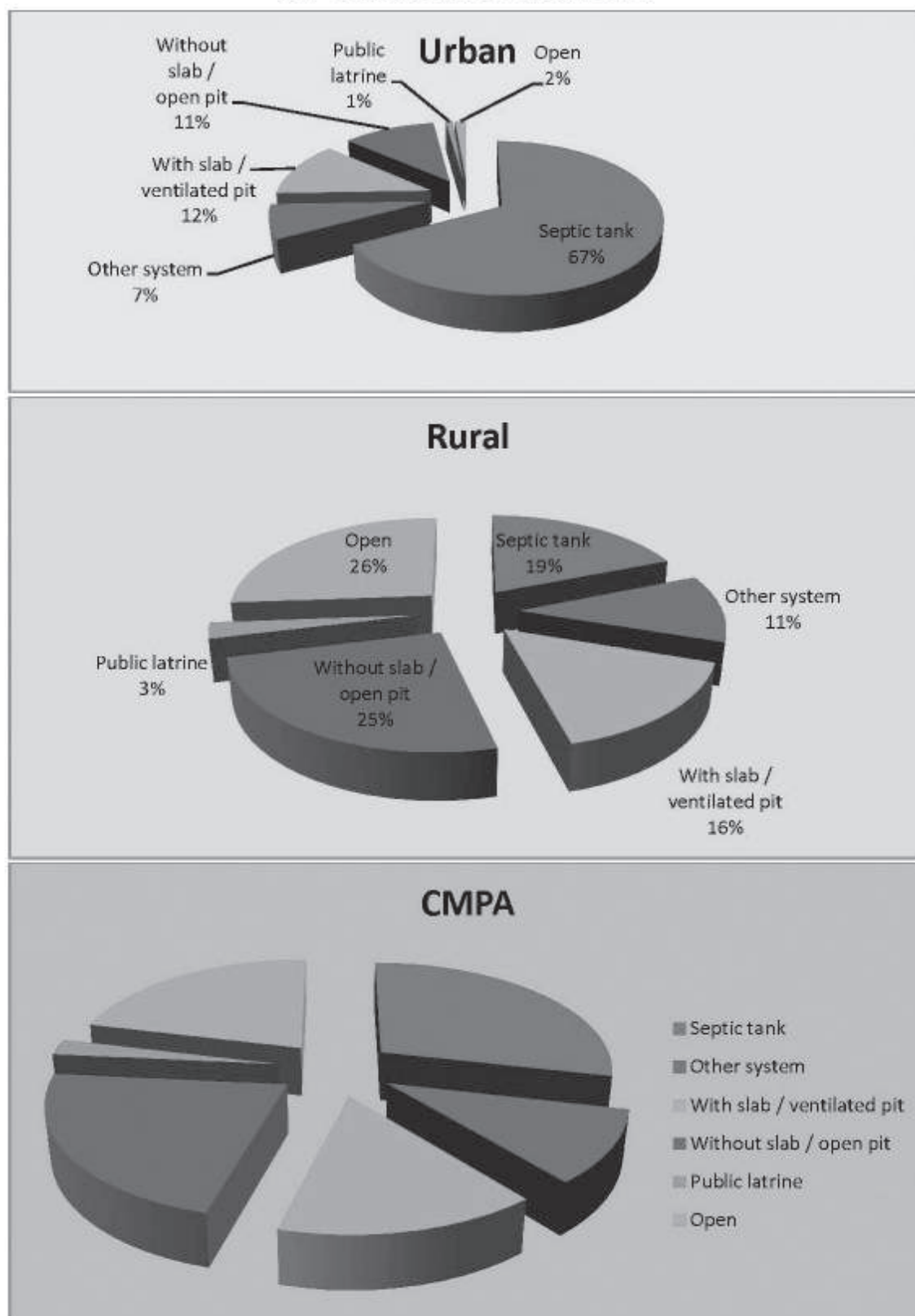
Under SBM, ULB's will ensure that a sufficient number of public toilet to be constructed in the town. All prominent places within the town attracting floating population should be covered. Cares should be taken to ensure that these facilities have adequate provision for man, woman and facilities for the disabled (e.g. ramp provision, Braille signage etc.) wherever necessary.

TABLE NO:-31
Number and % of households by type of latrine
in 2011 for Chabua Master Plan area

Type of Latrine		Urban	%	Rural	%	CMPA	%
Flush / Pour latrine	Septic tank	1234	67.10	1378	18.89	2612	28.60
	Other system	135	7.34	822	11.27	957	10.48
Pit Latrine	With slab / ventilated pit	221	12.02	1156	15.85	1377	15.08
	Without slab / open pit	208	11.31	1833	25.13	2041	22.35
No latrine without premise	Public latrine	16	0.87	195	2.67	211	2.31
	Open	25	1.36	1909	26.18	1934	21.18
TOTAL		1839	100.00	7293	100.00	9132	100.00

Source:- Census of India 2011

FIGURE-31
Percentage of households by type of latrine in 2011
for Chabua Master Plan area



URDPFI Guidelines for Public Toilets

The general standard for public toilets in public area and modified norms for public toilets in public places and roads recommended in URDPFI guideline are given below:-

TABLE NO:-32
NORMS FOR PUBLIC TOILETS IN PUBLIC AREA.

TYPE	NORMS FOR TOILETS
Public toilets	On road and for open areas every 1 Km. including parks, open air theater, car parks and fuel station. Toilets shall be disabled friendly and in 50 : 50 ratio (M / F)
Signage	Signboards on main streets shall given directions and mention the distance to reach the nearest public convenience of visitors. Helpline number shall be pasted on all toilets for complaints / queries
Modes	Pay and Use or free in pay and use toilets entry is allowed on payment to the attendant.
Maintenance / Cleaning	The toilets have both men and women attendants. Alternatively automatic cleaning cycle covering flush, toilet bowl, seat, hand wash basin, disinfecting of floor and complete drying after each use can be adopted. Public toilets shall be open 24 hrs.

The urban local body can follow the above norms for construction the public toilet and maintenance thereafter.

6.1.5 Sewerage Network

Like the rest of the towns of the state, Chabua also does not have sewerage network and treatment plant. Till the execution of the sewerage scheme, it is recommended to encourage the people to construct sanitary latrines of their own and to cover poor families under Swachh Bharat Mission. The use of service latrine should be banned as per law for the health and hygiene of the community

6.1.6 Solid Waste Management

Solid Waste Management (SWM) is a process which involves collecting and disposing of solid wastes is unavoidable by products of human activities. Municipal Solid Waste (MSW) in India which includes garbage, metals, bottle or glass, plastics, paper and fabric have been increasing in recent years because of

population increase, rapid urbanisation, technology and improper through-way culture of people. In general, the MSWM is the collection, treatment and disposal of solid waste generated by all categories of Municipal population in an environmentally, friendly and socially satisfactory manner using the available resources most efficiently. Urban bodies are generally responsible for providing the SWM services and nearly all local government laws give exclusive mandate of collecting all the wastes disposed outside homes or establishments. Effective solid waste collection and disposal is a vital component of public service provisions and should take priority particularly in emerging towns. Because, failing to have such services can result in many unfavourable outcomes in the long run and this may have serious adverse effect on public health and the environment.

The generation of solid waste has become an increasing environmental and public health problem in every urban area of India. The most urban areas of India rapid urbanisation and population growth has produced tremendous amounts of solid and liquid wastes that degrade the environment and destroy the resources. In the past, most policies and frameworks governing solid waste management in India have been directed at the service providers and less attention has been paid to the demand side aspect of the problem. As such, in present environmentally safe and ethical solid waste management system in Chabua town and its adjoining areas must be justified. Chabua town is growing very rapidly in recent years. Unplanned growth and development of the town in recent years and environmentally unsafe disposal of urban solid waste by residents of some parts of the town over the last two decades have been a major cause of the life threatens health hazards in the town. Chabua Municipal Board with an area of 0.94 Sq. Km. generates a sizeable amount of waste daily. Thus, under such circumstances it is very essential for environmentally safe and hygienic solid waste management system in the town in order to explore the possibility of community participation for a better Municipal Solid Waste Management System (MSWMS).

The solid waste generated in Chabua is presently dumped at Lekai, Dibrugarh.

Further, a few steps for scientific solid waste management system in master plan area includes segregation of bio-degradable and non-biodegradable solid waste at source, construction of compact pits at all residential houses in order to produce compost wherever feasible, introduction of specific litter bins for collection of segregated bio-biodegradable and non-biodegradable solid waste for soil conditioning and recycling purpose respectively, and doing away with the system of dust bins along roads which is a major cause of pollution.

The duties and responsibilities of ULB's as per revised Solid Waste Management rules of 2016 are given below:

- (i) The ULB's shall prepare a Solid Waste Management plan as per state policy within six (6) months.
- (ii) Arrange for door to door collection of segregated solid waste; integrate rag pickers/informal waste collectors in solid waste management.

- (iii) Frame bye-laws incorporating the provisions of these rules within one year, prescribed user fee.
- (iv) Direct waste generators not to litter and to segregate the waste at source and handover does aggregated waste to authorized waste pickers, the waste collector authorized by the ULB.
- (v) Set up material recovery facilities or secondary storage facilities and provide easy access to waste pickers and recyclers for collection of segregated recyclable waste.
- (vi) Established waste deposition centre for domestic hazardous waste and ensure safe storage and transportation of the domestic hazardous waste to the hazardous waste disposal facility or as may be directed by the state pollution control board.
- (vii) Direct street sweepers not to burn tree leaves collected from street sweeping and store them separately and hand over to the waste collectors or agency authorized by ULB.
- (viii) Provide training on solid waste management to waste pickers and waste collectors.
- (ix) Promote setting up of decentralized compost plant or bio – meth nation plant at suitable locations in the markets or in the vicinity of markets ensuring hygienic conditions.
- (x) Collect separately waste from sweeping of streets, lanes and by-lanes daily or on alternate days or twice a week depending on the density of population, commercial activity and local situation.
- (xi) Involve communities in waste management and promotion of home composting, bio – gas generation, decentralized processing of waste at community level subject to control of odour and maintenance of hygienic conditions around the facilities.
- (xii) Educate workers including contract workers and supervisors for door to door collection of segregated waste and transporting the unmixed waste during primary and secondary transportation to processing or disposal facility.
- (xiii) Ensure that the operator of a facility provides personal protection equipment including uniform, fluorescent jacket, hand gloves, rain coats, appropriate foot wear and masks to all workers handling solid waste and the same are used by the work force.
- (xiv) Create public awareness on solid waste management.

6.1.7 Electrical Sub –Station and Major Transformers

Power requirement of Chabua master plan area is meeting by the ASEB grid. In 2011, there are 1688 electric connections i.e. almost 91.79 % in urban area and 2922 electric connections i.e. almost 40.07% in rural area. In the master plan area as a whole there are 4610 electric connections i.e. almost 50.48% in the year 2011. Since the projected population of Chabua master plan will be 82632 (approx), as such consumptions will be increasing at a fast rate due to increase of population as well as modernization of home appliances, it is necessary for the APDCL to make necessary arrangement of power supply to fulfill the consumption demand of the people.



Electric sub-station of Chabua

6.2 Social Infrastructure

6.2.1 Education facilities

The progress and development of a place is closely related to expansion, development and modernization of education facilities. The educational atmosphere in Chabua is comparatively good. For school level education, high quality educational institution like Chabua Girl's HS, Montfort HS, Kanjikhowa Jatiya Vidyalaya, etc., for college level education DDR College, Chabua Junior College, etc. provides educational facilities not only to the students of Chabua but also the students to its adjoining areas as well as nearby towns. Beside these school, there are so many L.P and High Schools, and many other private play house school providing school education in Chabua.

Dakha Devi Rasiwasia (DDR) College was established in the year 1971. It has been catering to the higher education needs of vast rural and academically, socially and economically challenged students of Chabua. Providing opportunities to learn degrees, diplomas and Certificates of thousands of students over the years has always focused on the needs of the not so privileged and underprivileged sections of local indigenous communities and tribes.



DDR College, Chabua



Montfort High School



Little Angel High School



Anniruddha Dev Jatiya Vidyalaya



Dinjoy Hazarimol HS School



Betmela LP School



Assam Vidyapith HS School

Vocational Training Institutes



DIET, Chabua



Basic Training Centre, Chabua



ITI, Chabua

TABLE No-33
List of Educational Institutions in Chabua master plan area

LP Schools			
1. Pub Deodhai LP School	2. Rajabari LP School	3. Sealkati No.4 Tea Garden LP School	4. Aniruddha Dev LP School
5. RupKonwar LP School	6. Bhardhara LP School	7. Moricha Koibarta LP School	8. Mereli Banua LP School
9. Assam Vidyapith LP School	10. Chabua Pulunga LP School	11. Kanjikhowa LP School	12. Paniera gaon LP School
13. Bastuhara LP School	14. Niz Chabua Mazdur LP School	15. Dangorchuk LP School	16. Dinjoy LP School
17. Haragunrai Bherudan LP School	18. Niz Chabua LP School	19. Chungichuk Chah Banua LP School	20. Deodhai LP School
21. Rastriya Hindi Vidyalaya LP School	22. Chetia gaon LP School	23. Dinjoy Chapori LP School	24. No.2 Komar Gaon LP School
25. Betmala LP School	26. Koilabari LP School		
ME Schools			
1. Assam Biduyapith MESchool	2. Rashtriya Hindi Vidyalaya MESchool	3. Aniruddha Dev MESchool	4. Bastuhara MESchool
5. Kanjikhowa MESchool			
MV Schools			
1. Haranath MV School	2. Chabua Pulunga MV School		
High School & Higher Secondary			
1. Bastuhara Bidyalay HS	2. Chabua Jatiya Vidyalaya	3. Assam Vidyapith HSS	4. Rashtriya Hindi HS
5. Assam Vidyalaya Niketan	6. Anniruddha Dev HS	7. Chabua Girls HS	8. Kanjikhowa Jatiya Vidyalaya
9. Monfort HS	10. Little Angel HS	11. Maricha Gaon HS	12. Dinjoy HS
13. Dinjoy Hazarimol HS			
College			
1) Chabua Junior College	2) DDR College		

Source: -<http://schools.org/assam>

URDPFI Guideline for Education facilities**TABLE NO-34****NORMS FOR PRE-PRIMARY NURSERY SCHOOL TO HIGHER EDUCATION**

Sl. No	Category	Student Strength	Population served per unit	Area Requirement	Other Controls
1	Pre-Primary Nursery School	-	2500	0.08 Ha	To be located near park
2	Primary School (Class I to V)	500	5000	Area per School = 0.40 Hec. A) School building area = 0.20 Hec. B) Play field area = 0.20 Hec.	Play field area with a minimum of 18m x 36m to be ensured on effective play.
3	Senior Secondary School (VI to XII)	1000	7500	Area per School = 1.80 Hec. A) School building area = 0.60 Hec. B) Play field area = 1.00 Hec. C) Parking area = 0.20 Hec.	Play field area with a minimum of 68m x 126m to be ensured on effective play.
4	Integrated School without hostel facility (Class I to XII)	1500	90000 To 1 Lakh	Area per School = 3.50 Hec. A) School building area = 0.70 Hec. B) Play field area = 2.50 Hec. C) Parking area = 0.30 Hec.	To be located near a sport facility
5	Integrated School with hostel facility (Class I to XII)	1500	90000 to 1 Lakh	Area per School = 3.90 Hec. A) School building area = 0.70 Hec. B) Play field area = 2.50 Hec. C) Parking area = 0.30 Hec. D) Residential area = 0.40 Hec.	To be located near a sport facility
6	School for Physically Challenged	400	45000	Area per School = 0.70 Hec. A) School building area = 0.20Hec. B) Play field area = 0.30 Hec. C) Parking area = 0.20 Hec.	To be located near park or sport facilities
7	College	1000 To 1500	1.25 Lakhs	Area per School = 5.00 Hec. A) School building area = 1.80 Hec. B) Play field area = 2.50 Hec. C) Parking area = 0.30 Hec. D) Residential area = 0.30 Hec.	

From the survey it has been found that most of the educational institutions except Montfort High School, Hatkhula School, DDR college, the area of the educational institutions is not sufficient as per **URDPFI** guidelines and there are no adequate play grounds and parking facilities.

So, this plan suggest to take measures by the education department as well as private institution to increase the area of primary school up to 0.40 Hectare including playfield area, for Higher & Higher Secondary School up to 1.80 Hectare including playfield and parking area and for the intermediate school up to 3.50 hectare including playfield, parking facility and hostel facility as per URDPFI guideline.

This plan also suggest for the provision for school for physically challenged child / person's in an area of about 0.70 hectare for the enrolment capacity of 400 with adequate playfield and parking facility by the education department or by any NGO associated with social up liftmen of the region.

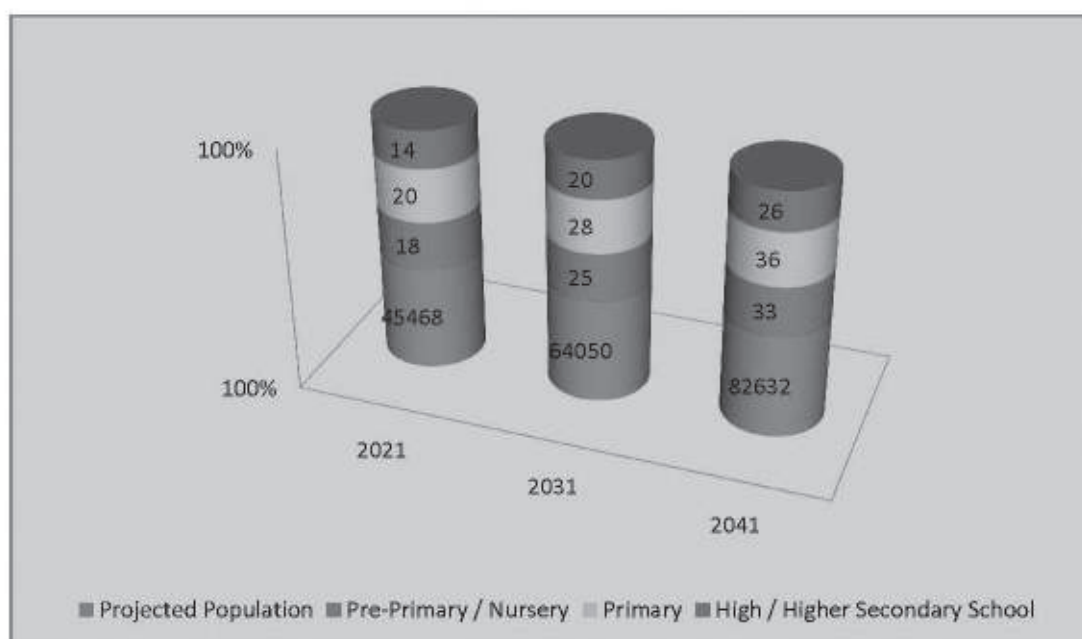
The following table shows the students strength and requirement of schools in Chabua Master Plan Area during 2021-2041.

TABLE NO-35
School required in CMPA upto 2041

YEAR	PROJECTED POPULATION	<u>Pre-primary /Nursery</u> Student strength-	Requirement of Pre-primary /Nursery Schools (100 students per school)	<u>Primary</u> Student strength-	Requirement of Primary Schools (250 students per school)	<u>High/Higher Secondary School/College</u> Student strength-	Requirement of High/Higher Secondary School/College (700 students per school)
2021	45468	1818	18	5001	20	10002	14
2031	64050	2562	25	7045	28	14091	20
2041	82632	3305	33	9089	36	18179	26

Source :- Calculated by T & CP, Dibrugarh

FIGURE :-32
School required in CMPA upto 2041



Source: Estimated by Town & Country Planning, Assam, Dibrugarh

The shortage of schools in the plan area, to some extent has been fulfilled by the private institutions at present and it is also hope that in the future, private institutions will play an important role to mitigate the shortage of primary schools as well as High and Higher Secondary schools.

6.2.2 Health Care facilities

Hospitals and healthcare services in the town of Chabua and its adjacent area is satisfactory to some extent due to the existence of several tea garden hospitals. One of the premiere health institution in Chabua is Tata Referral Hospital & Research Centre situated in Chabua Tea Estate.



It is a 75-bedded, secondary care hospital, was conceptualized by Tata Tea Ltd. in 1989 and was set up by Tata Tea in 1994. It has been offering treatment at minimal cost to the general public. The hospital works on a non-profit basis. Through its sustained and ethical medical practices, It has earned a good reputation not only locally but even in the neighbouring states of Nagaland and Arunachal Pradesh from where patients come seeking better medical care. It is the only healthcare centre in the region with SA8000 certification. Since 2007, the hospital has treated over 3,00,000 patients of which over 2,50,000 have been non-employee patients. The mission of the hospital is to provide the best secondary medical care at affordable cost in the North East.



Panitola Block Primary Health Centre



Amalgamated Plantation Hospital, Chabua T.E.



Sealkotee Hospital



Mahatma Gandhi Model Hospital



Model Rural Health Research Unit (MRHRU)

Most of the health-care facilities except TATA referral hospital have limited treatment facilities needed to support the people of the town and its adjoining village areas. Serious category patients generally rush to Assam Medical College, Dibrugarh situated at a distance of 30 Km from Chabua for better treatment.

TABLE No-36
List of Health facilities in Chabua Master Plan area

Sl. No.	Name of Health facilities
1	Tata Referral Hospital & Research Centre
2	Mahatma Gandhi Model Hospital, Chabua
3	Model Rural Health Research Unit (MRHRU)
4	Amalgamated Plantation Hospital
5	Chabua T.E. Health Sub-Centre
6	Chabua Urban SC Health Sub-Centre
7	WHO Health Care
8	Panitola Block Primary Health Centre, Kanjikhowa
9	Sealkotee T.E. Hospital, Swananda Tea Pvt. Ltd.
10	Chetia gaon SC Health Sub-Centre
11	Dinjoy Satra Chapori SC Health Sub-Centre
12	Koilabari SC Health Sub-Centre
13	Kopohuwa SC Health Sub-Centre
14	Bishmila Sub-Centre

Source :-Data collected by T&CP, Dibrugarh

URDPFI Guideline for Health Care Facilities

In the health care facilities the size of a hospital depends upon the hospital bed requirement, which in turns is a function of the size of the population it serves. As per URDPFI guideline the calculation of number of beds is based on:-

- A) Annual rate of admission as 1 per 50 population
- B) Average length of stay in a hospital as 5 days.

Since the projected population for Chabua master plan upto the Year 2041 is 82632 as such, the number of beds required for the said population is :-

- i) No. of beds days per year = $(82632 \times 1/50) \times 5 = 8263$
- ii) No. of beds required with 100% Occupancy = $8263/365 = 23$

The classification of healthcare facilities as URDPFI guideline is given in the following table:-

TABLE NO:-37
HEALTHCARE FACILITIES

Sl. No	Category	No. of Beds	Population served per unit	Area Requirement
1	Dispensary	-	15000	0.08 to 0.12 Ha
2	Nursing home, Child Welfare & Maternity	25 to 30 beds	45000 to 1.00 Lakhs	0.20 to 0.30 Ha
3	Polyclinic	Some observation bed	1.00 Lakhs	0.20 to 0.30 Ha
4	Intermediate Hospital	200 Initially the provision may be for 100 beds including maternity beds	1.00 Lakhs	Total Area = 3.7 Ha, i) Area for hospital = 2.70 Ha. ii) Area for Residential Accommodation = 1.00 Ha.
5	Family Welfare Centre	As per requirement	50,000	Total Area = 500 Sq.m to 800 Sq.m
6	Diagnostic Centre	As per requirement	50,000	Total Area = 500 Sq.m to 800 Sq.m
7	Rehabilitation Centre	-	-	As per requirement

This plan suggest to take appropriate measures by the health department for the provision of 6 nos. of dispensaries at various location within the master plan area covering an area of 0.08 – 0.12 hectare per dispensary serving at least 15,000 person's. This plan also asked the health department to develop the existing health care centres This plan also suggest to set-up a family welfare center to serve at least 50000 person's by the health department and also a Rehabilitation center by the Govt. or by any NGO for the upliftment of deprived class of the community.

6.2.3 Parks and Recreation Spaces

In Chabua there is 1 outdoor stadium and 6 playgrounds which provides the recreational facilities to the people of the master plan area. DDR College has their own field for recreational activities. Tea Estates have their own play-fields and auditoriums for outdoor and indoor recreational facilities.

In Chabua Master Plan Area the existing land use for recreational purposes is only 50 hectares i.e. 0.83% of the master plan area or 2.81% of the total developed area. In this plan the proposed Land use for recreation purposes increase to 90 hectares i.e. 1.49% of the master plan area or 3.47% of the total developed area keeping in mind the increase of population up to the year 2041.



DDR College field



Bismile playground



Betmela playground



Habichuk playground



Indoor Hall

CHAPTER - 7

7. ENVIRONMENT, TOURISM AND CITY BEAUTIFICATION PLAN

7.1 Description of eco-friendly areas –

There are many eco-friendly/heritage sites in Chabua which became the pride of Chabua.

7.2 Plan/Measures for protection and conservation of environmentally-friendly zones.

Being environmental friendly simply means having a lifestyle that is better for the environment. It's all about taking small steps towards mother earth so as to make this planet a better place for our communities and generations to come. A good way would be to start with conserving water, driving less, walking more, consuming less energy, buying recycled products, eating locally grown vegetables, joining environmental groups to combat air pollution, producing less waste, planting more trees and many more. The more that we do on our part the faster we will create an environment of living that promotes sustainability.

In the environmentally friendly zone, there is more than just a good recycling programmed in place. People of the town who are committed to conservation and preservation of resources should encourage options like community play grounds, public transportation, green construction and work to change the way that fossil fuels and other resources are used to support community services.

This plan suggest following proposals for protection and conservation of environmental friendly zones-

- (i) People of Chabua urban area should join hand with environmental groups to protect the town and make the environment clean and green.
- (ii) Reduce, reuse, recycle waste hierarchy is the order of priority of actions to be taken to reduce the amount of waste generated and to improve overall waste management processes and programs.
- (iii) Plantation habit should be grown up among the people. For this necessary awareness camp should be organized by competent authority for conservation of natural resources and composting system.
- (iv) Steps should be taken by the authority to stop people from littering on roads. Instead, educate them to put trash and garbage in dustbins. The pile of garbage on road hampers the beauty of the city and also pollutes the air.

- (v) Steps should be taken by the concerned authority to reduce the emitted hazardous chemical and gases in industrial activities.



Plantation habit



Reduce, reuse, recycle waste

7.3 City Beautification Plan/Proposals-

To improve town's appearance and aesthetic view, neighbour hoods often try to update what is known as streetscape, which pertains to the area between the driving lanes and the edge of the private property. Partly this is a popular strategy because it is public space and it's easy for the government to dictate what will happen there. In truth, streetscape can be quite effective in uniting block faces or a series of blocks that are discordant in some way, because streetscape often includes plantings, the effect is to soften the view created by streets and hopefully sidewalks. Care in the choice of materials and in the quality of the installation makes all the difference in this form of beautification.

In addition to streetscape, sometimes we need a focal point. This might be public art and open air theatre, fountains, a clock tower or grouping of tall grasses. If we already have a lonely statue or old historical building with nothing around it, maybe we should add planting beds of considerable size, an inviting bench or two, and may be an interpretive sign explaining the rest of the store". A tree planting



project, either on a vacant plot, in a park, or in the parkway between the side walk and the street is great for improving Towns appearance over the course of a few years at a relatively low cost. Voluntary schemes should be taken up by neighbourhood basis for cleaning up the park of the town. Project should also be taken up for cleaning the river or stream.

7.4 Roadside Plantation-

The main object of road side plantation is to provide protection to road, traffic, check soil erosion, food, fuel, fodder and timber to the society and mitigate climate change issues. Plantation is durable assets that produce fruits and raw-materials for agro based industry, and also generate livelihood after 7 to 10 years.

This plan suggest the social forestry department to prepare project on road side plantation with details of road to be covered , length of road and species of plants to be planned with numbers of plants for entire Chabua master plan area.

Plantation of fruit bearing plants, suitable to local agro-climatic condition should be done in every area of the master plan. The authority concern should take steps for organizing camp and awareness program for road side plantation and educate the people about the benefits of road side plantation including its impact on city's landscape.



7.5 Urban Agriculture and Urban Forestry.

Urban Agriculture is the new culture that is catching up in emerging cities. Since the population growth rate is very high, natural resource to feed the increasing population in coming days is going to be a difficult task. So, urban agriculture is seen as a big solution to the problem.

Urban forestry is the careful care and management of tree in urban settings for the purpose of improving the urban environment. Urban forestry advocates the role of trees as a critical part of the urban infrastructure. Urban forest function is thus often oriented toward human outcomes, Such as shade, beauty and privacy. Urban forests bring many environmental and economic benefits to town. Among these are energy benefits in



the form of reduced air conditioning, reduced heating by shading buildings, homes and roads, absorbing sunlight, reducing ultraviolet light, cooling the air and reducing wind speed.

So, urban forestry scheme should be taken by competent authority for afforesting degraded forest land in the Chabua master plan area. This type of scheme will act against climate change by creating a carbon sink and against air pollution in the town. This plan also suggests for starting tree surveys in the town which can be conducted by NGO and college or school student's. A plan should be framed to create small nurseries in Govt. school as well as in private institution where there is extra space.

7.6 Public Rain Water Harvesting Scheme

Rainwater harvesting is a process involving collection and storage of rain water that runs off natural or man-made catchment areas, e.g. roof top, Compounds, rock surface or hill slopes or artificial repaired impervious/semi-pervious land surface.

Due to deforestation and the consequent ecological imbalance, the ground water level is going down day by day. The constant rising demand of water supply especially from the urban areas does not match with the surface water sources, as a result of which the water reserves beneath the ground level are over exploited. This consequently results in the water level depletion.



Water harvesting apart from recharging the ground water level, increases the availability of water at a given place at a given point of time. It also reduces the power consumption. It further reduces the run off which chokes the storm water drains, artificial flooding, chances of soil erosion and improves the quality of water. The plan suggest rain water harvesting scheme to be implement by a competent authority. Moreover, the urbanization trend reduces the infiltration rate of rain water into the sub-soil thereby reduces ground water recharging.

7.6.1 Development of Parks and Recreation Spaces-

The Plan recommends 83 hectares of land for recreational purposes. The plan envisages a Town hall to meet the social and cultural needs of the town and also recommends modernizing the existing play ground with adequate

infrastructure. The plan also proposes an indoor stadium and a swimming pool at Chabua Stadium, a children park near Circle Office and small size children park at each neighborhood area and in composite zones.

URDPFI Guideline for Parks and Recreation Spaces

The provision of socio- cultural facilities shall correspond to the changing urban demography and work life style.

TABLE NO-38
NORMS FOR SOCIO- CULTURAL FACILITIES

Sl. No	Category	Population Served per unit	Land Area Requirement (Sq.m)
1	Aganwadi- Housing area / Cluster	5000	200-300
2	Community Room	5000	750
3	Community hall / Marriage hall/ Library	15000	2000
4	Music, dance and drama centre	1 Lakh	1000

TABLE NO-39
Norms For Recreational Facilities

Sl. No	Category	Population Served per unit	Area Requirement (Ha)
1	Housing Area Park	5000	0.50
2	Neighbourhood Park	15000	1.00
3	Community Park	1 Lakh	5.00

TABLE NO-40
Norms for Sports Facilities

Sl. No.	Category	Population Served per unit	Area Requirement (Sq. M)
1	Residential unit play Area	5000	5000
2	Neighbourhood Play Area	15000	1.5
3	Town sports centre	1 Lakh	8.00

7.7 Beautification of Major Transit Zone

Chabua has emerged as a major transit zone for tea, and fruits like orange. Tea of Chabua transit to all over India. So, it is very much essential to beautify and upgrade the major traffic points like bus stand, railway station, market area of this emerging transit zone of upper Assam.

7.8 Road Signage and Street Furniture

Road signs are signs erected at the side of or above roads to give instruction or provide information to road users. The earliest signs were simple wooden or stone milestones. But in course of time, many states of India have been adopting pictorial signs or otherwise simplified and standardized their signs to overcome language barriers and enhance traffic safety, such pictorial signs use symbols in place of words.

Street furniture is a collective term for objects and pieces of equipment installed on streets and roads for various purposes. It includes Benches, traffic barriers, bollards, post boxes, phone boxes, street lamps, traffic lights, traffic signs, bus stops, taxi stand, public lavatories, fountains, public sculptures and waste receptacles. An important consideration in the design of street furniture is how it affects road safety.

In Chabua Master Plan Area existing road signs and furniture are inadequate for increasing traffic and those are not also scientifically designed.

So, the plan suggests to authority concern to take steps for the installation of warning, priority, prohibitory, mandatory, information, facilities, service, direction, position and indication signs in the roads of Chabua town, so that local people as well as outsiders can be benefitted and road safety can be maintained.

In Chabua master plan area presently there is no street furniture necessary for the public. The concern authority should take steps for the construction of public lavatories at important public places and installation of benches in the park and public places, post boxes, bus stop, taxi stand, waste collectors etc.

This plan recommends for preparation and execution of a city beautification plan covering street light, traffic signal etc. that will enhance the beauty of this resource full town.



CHAPTER -8

8. LAND USE PLAN

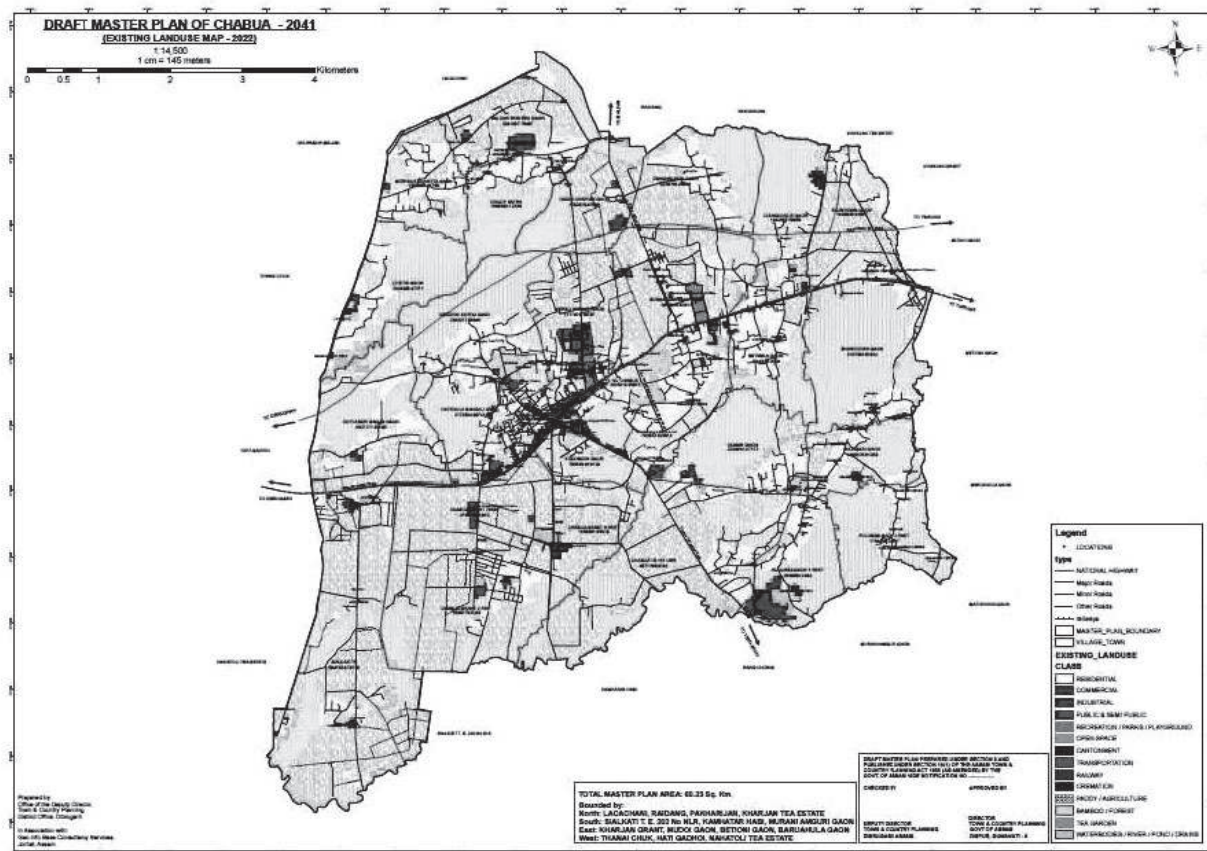
8.1 Developable and Non – Developable Area of the Master plan

Urban growth and development is often conditioned by the natural landscape like hills, water bodies, forests and manmade impediments like railway line, major roads & canals etc. It is also conditioned by the resources and technology employed in overcoming the impediments and constraints.



Existing Chabua master plan is mainly situated in flat land. Except the railway line there is no other physical feature acting as a constraint for development. The soil is very fertile and good vegetation and tea garden is observed in the region.

The quality of urban life and its functional efficiencies are governed by its land-use pattern. In order to understand and analyze systematically the functional relationship between various uses particularly the place of living, business place, industrial activity, education, recreation, agricultural activity etc., a detail land-use survey was conducted during the year 2022 to estimate the present and future need of the urban area as well as master plan area. Chabua master plan covers an area of 6023 hectare (60.23 Sq.km), out of which developed area is 1778 hectare (17.78 sq.km.) i.e. 29.52 % of the total plan area and non-developed area is 4245 hectare (42.45 sq.km.) i.e. 70.48 % of the total plan area.



The existing land use and the areas occupied by each use in Chabua Master Plan Area is shown in the following table:

TABLE NO-41
EXISTING LAND USE - CHABUA MASTER PLAN AREA IN 2022

Use	Chabua Master Plan Area in hectare	Percentage of the Chabua Master Plan Area (%)	Percentage of the total developed Area (%)
Residential	1478	24.54%	83.13%
Commercial	41	0.68%	2.31%
Industrial	54	0.90%	3.04%
Public & Semi Public	91	1.51%	5.12%
Recreation	50	0.83%	2.81%
Circulation	44	0.73%	2.47%
Railways	4	0.07%	0.22%
Defence	16	0.27%	0.90%
Total Developed Area (A)	1778	29.52%	100.00%
Agriculture	2384	39.58%	-
Green-belt (A)-Tea Estate	1674	27.79%	-
Green Belt (B) - Forest	55	0.91%	-
Open Space	77	1.28%	-
Water Bodies	55	0.91%	-
Total Undeveloped Area(B)	4245	70.48%	-
Grand Total Plan Area (A+B)	6023	100.00%	-
	(60.23 Sq.km.)		

Source:- Town & Country Planning, Dibrugarh Land Use Survey 2022 & GIS calculation.

Figure-33
Existing Land Use Distribution in Chabua Master Plan

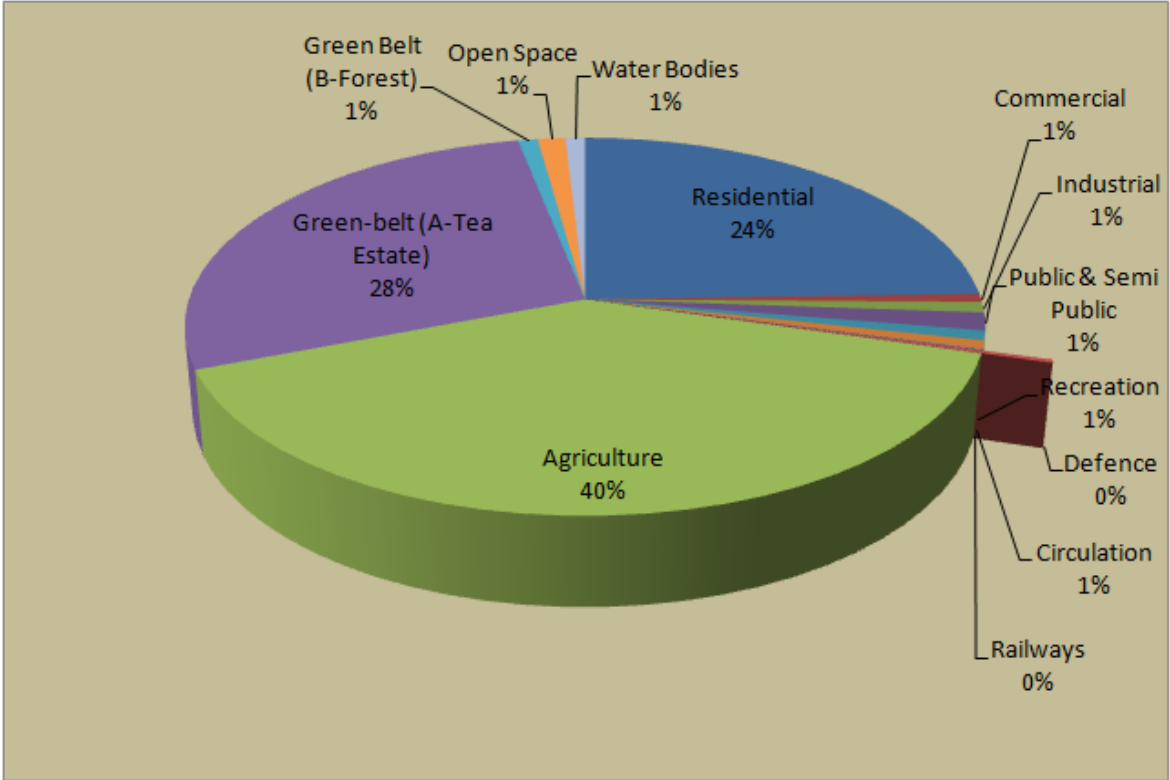
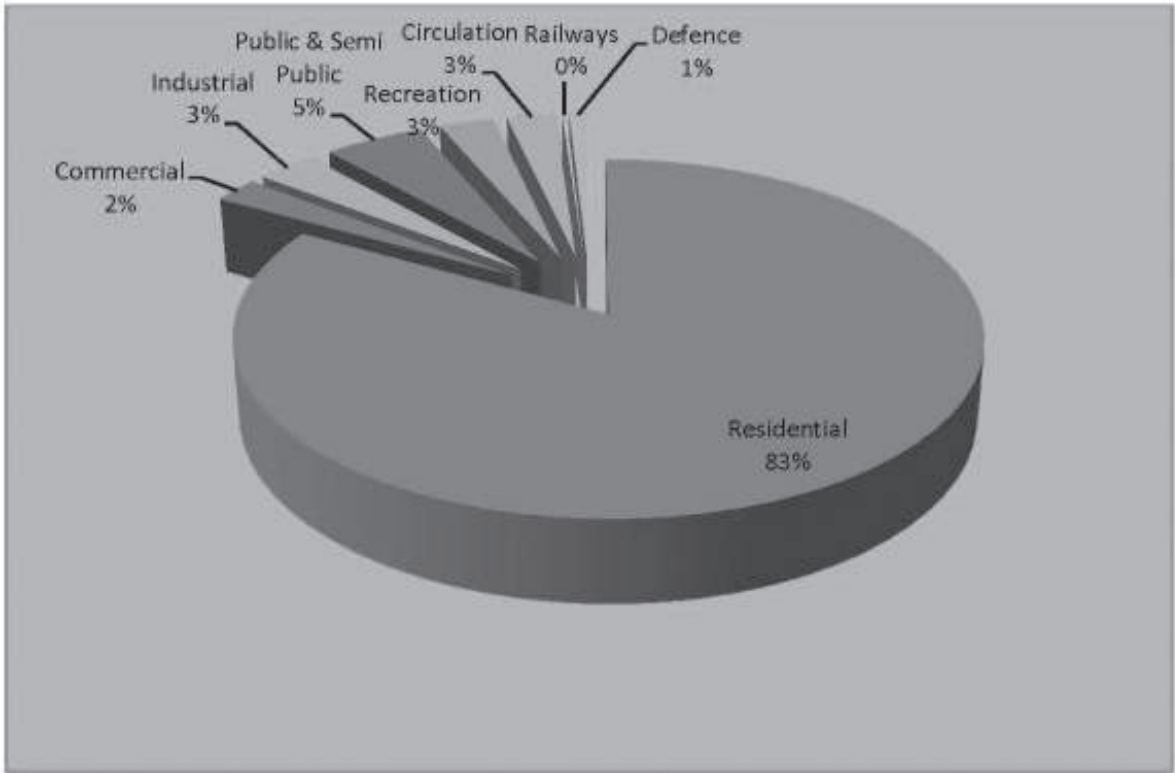


Figure-34
Existing Land Use Distribution in Developable area of Chabua Master Plan



In Chabua master plan area, 1478 hectare of land (24.54% of master plan area and 83.13% of total developed area), is use for residential purposes.

In Chabua master plan area, 41 hectare of land (0.68% of master plan area and 2.31% of total developed area) is used for commercial and business purposes. The business area in Chabua spread over both sides of NH-15. Vegetable, grocery and food market are located in compact manner at Chabua Daily Market. The roads being narrow, no provision of parking area in market places and on road parking of all types of vehicles including commercial vehicles at market area creates traffic congestion in the area.

In the master plan area 54 hectare of land (0.90% of master plan area and 3.04% of total developed area) is used as industrial activities. Existing brick kiln industries is located at Pulunga gaon by the side of Chabua-Tengakhat road.

The land use for Public and Semi-public purposes including educational institutions, government offices, health care etc. are 91 hectare of land (1.51% of master plan area and 5.12% of total developed area). The land uses under this category is scattered all over the master plan area.

In master plan area, 50 hectare of land (0.83% of master plan area and 2.81% of total developed area) is used for recreational purposes. In Chabua for outdoor games 1 stadium, 5 playgrounds, 1 Indoor Hall, besides there is 1 field for outdoor games of own educational institutions of DDR College and various other open spaces fulfill the recreational activity of the people of Chabua.

Transportation & circulation network of a town or planning area plays an important role and affects immensely the economic and socio cultural life of the planning area. A well-developed road network can provide answer to many problems of urban life. Accordingly in CMPA, the land use for circulation purposes is 44 hectare of land (0.73% of master plan area and 2.47% of total developed area).

Railways occupy only 4 hectare of land (0.07% of master plan area and 0.22% of total developed area). The railway track is passing through the heart of the town.

Defence occupies 16 hectare of land (0.27% of master plan area and 0.90% of total developed area).

In CMPA, land use for agricultural purposes is 2384 hectare of land (39.58% of the master plan area). Agricultural activities mainly takes place in Kumar gaon, Morankari gaon, Bhardhara gaon, Rajabari gaon, Pulunga gaon, Chungichuk gaon, Dinjoy Satra, Moricha Koibarta gaon, Chetia gaon, Deodhai kopow gaon, Hatkhula bongali gaon and Koilabari gaon.

Green-belt (A)-Tea garden areas occupy 1674 hectare of land (27.79% of master plan area). In the master plan area there are 3 tea gardens and most of them have their own tea factories. Green belt (B)-Forest covers an area of 55 hectare of land (0.91% of the master plan area).

Open space constitute an area of 77 hectare of land (1.28% of the master plan area). Small size open space area scattered all over the master plan.

Water bodies constitute an area of 55 hectare of land (0.91% of the master plan).

8.3 Proposed Land use :

Land use planning has a bearing on the expansion of the town and put pressure on outer growth area and in rural areas. A change in urban economic function changes its population growth. The decision to set up administrative block, commercial activities, industrial estate, educational institution, health care as well as any government policy to stimulate the urban economy accounts for population growth as well as create opportunities for employment and business expansion.

The proposed Chabua master plan covers an area of 6023 hectare (60.23 sq.km.), out of which about 2590 hectare (43%) of land is proposed to be developed up to the year 2041 for a projected population of 82632 persons.

The following table shows the proposed distribution of land use in Chabua master plan area up to 2041.

TABLE NO-42
PROPOSED LAND USE - CHABUA MASTER PLAN AREA UPTO 2041

Use	Chabua Master Plan Area in hectare	Percentage of the Chabua Master Plan Area (%)	Percentage of the total developed Area (%)
Residential	2106	34.97%	81.31%
Commercial	69	1.15%	2.66%
Industrial	68	1.13%	2.63%
Public & Semi Public	125	2.08%	4.83%
Recreation	90	1.49%	3.47%
Circulation	112	1.86%	4.32%
Railways	4	0.07%	0.15%
Defence	16	0.27%	0.62%
Total developed area (A)	2590	43.00%	100
Agriculture	1599	26.55%	-
Green-belt (A)-Tea Estate	1674	27.79%	-
Green Belt (B)-Forest	55	0.91%	-
Open Space	50	0.83%	-
Water Bodies	55	0.91%	-
Total Undeveloped Area(B)	3433	57.00%	-
Grand Total Plan Area (A+B)	6023	100	-
	(60.23 Sq.km.)		

Source: - Town & Country Planning, Dibrugarh Land Use Survey 2022

Figure-35
Proposed Land Use Distribution in Chabua Master Plan

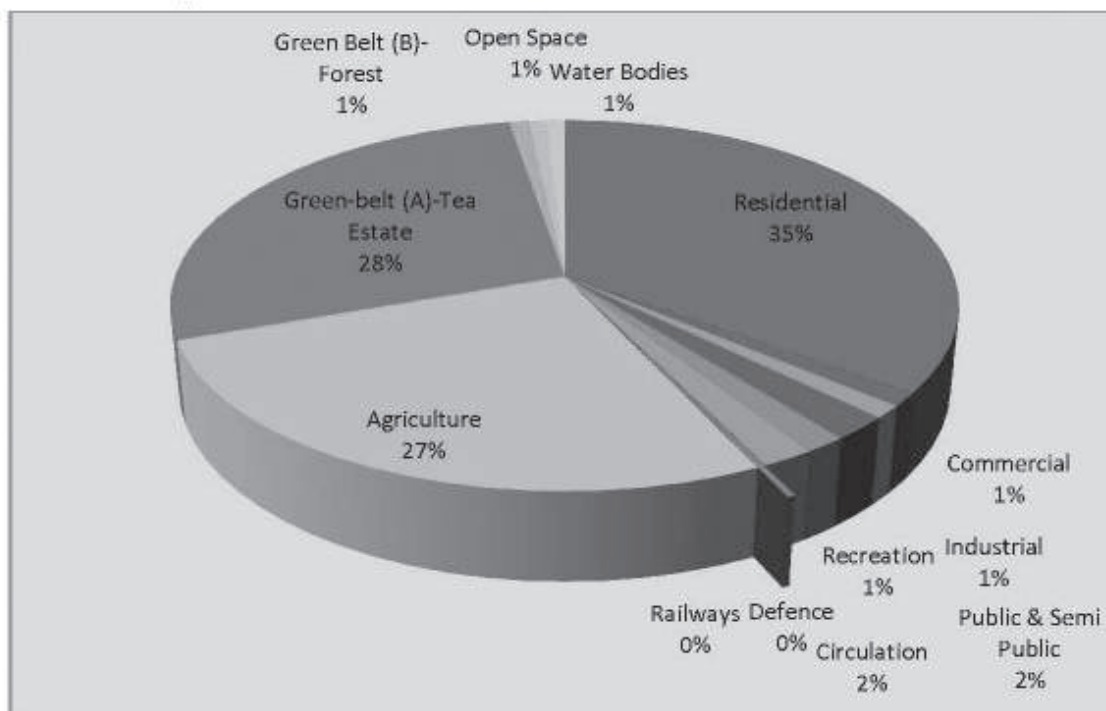
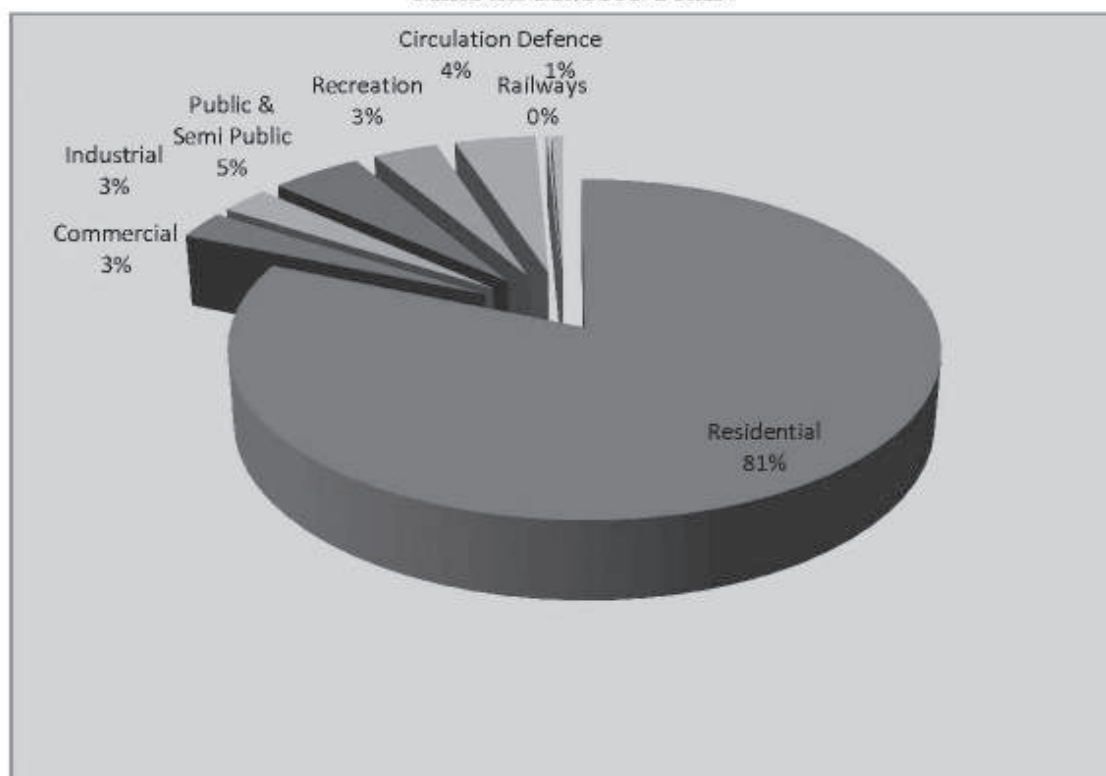


Figure-36
Proposed Land Use Distribution in Developable area of Chabua Master Plan



An area of 2106 hectare of land (34.97% of the master plan area and 81.31 of the total developable area) has been earmarked for residential use for projected population of 82632 persons of Chabua master plan area and rural areas up to the year 2041. It is presumed that a part of the total projected population will be residing in the mixed used areas. In the proposed land use plan, the population density of the master plan area in the year 2041 will be 13,72 persons per hectare or 1372 persons per sq.km. The residential density of CMP area for the year 2041 will be 8.72 Dw/per hec. The following gross residential density is recommended in the plan:-

1. Low density : up to 50 persons per hectare
2. Medium density : 50 - 100 persons per hectare
3. High density : 100- 150 persons per hectare

Land earmarked for commercial activities is 69 hectare of land (1.15% of the master plan area and 2.66% of the total developable area).

Land earmarked for industrial activities is 68 hectare of land (1.13% of the master plan area and 2.63% of the total developable area).

In the plan the land earmarked for Public and Semi-public activities increases to 125 hectare of land (2.08% of the master plan area and 4.83% of the total developable area) for establishing Govt. offices, education institution and health care facility for the growing population.

In the same way to meet the demand of growing population, the area earmarked for recreation facilities has also been increased to 90 hectare of land (1.49% of the master plan area and 3.47% of the total developable area) for establishing parks, playground and indoor game facilities.

In the proposed land use plan, the land earmarked for circulation is 112 hectare of land (1.86% of the master plan area and 4.32% of the total developable area). In the plan new roads has been proposed to link up the sub-arterial and other road to arterial road. Besides for the efficiency of circulation pattern bus stand, truck stand and fly-over has also been proposed in the plan.

CHAPTER- 9

9. PROPOSED PROJECT, BRIEF AND TENTATIVE FUNDING SOURCE

9.1 Identify Priority Sectors and Project

The plan proposals for Chabua master plan area spread up to 2041. It is quite obvious that the natural development will continue and the private developers will play an important role in this respect. As such, the private development is encouraged in conformity with the master plan. It is strongly recommended to stop unplanned and sporadic developments but to encourage balance planned and sustainable development where the provision for necessary physical infrastructure and socio-economic amenities are economically made possible. There are some immediate necessities as pointed out by the various stake holders, which are to be taken up as priority schemes for the master plan area which is listed below :

1. Widening and improvement of roads, with street lights and demarcation of notified parking area.
2. Improvement of existing market situated at Chabua into a well-planned, people friendly business hub.
3. Construction of a Town Hall.
4. Development of Affordable Housing Colony for all sections of the Society considering the scenic beauty of the town.
5. Improvement of existing traffic signal points and setting up new ones.
6. Setting up of Organic farming industry.
7. Setting up of a Naturopathy centre.
8. Setting up of Agro based Hub.
9. Construction of Vendor and Hawker market.
10. Construction of public bus stand and truck stand.
11. Development and Construction of playground, Indoor stadium and parks.
12. System of regular collection and disposal of garbage in the master plan area by the concerned authority.
13. Preparation and execution of a comprehensive drainage scheme.
14. Water supply scheme.
15. Proposal for fuel filling station and LPG go down.
16. Cycle Track.
17. Proposal for Fire-station.
18. Proposal for Industrial area.

In the first phase, the schemes like widening and improvement of roads, construction of new roads, establishment of health centre, provision for required spaces for parks, playgrounds and parking places and improvement of commercial and market areas including existing market, daily bazaar etc. can be taken up. The Chabua Municipal Board has to play an important role visioning with other Govt. agencies in formulation and execution of such schemes in the master plan area. All the above schemes need to be carried out to make the plan area in to healthy place of living.

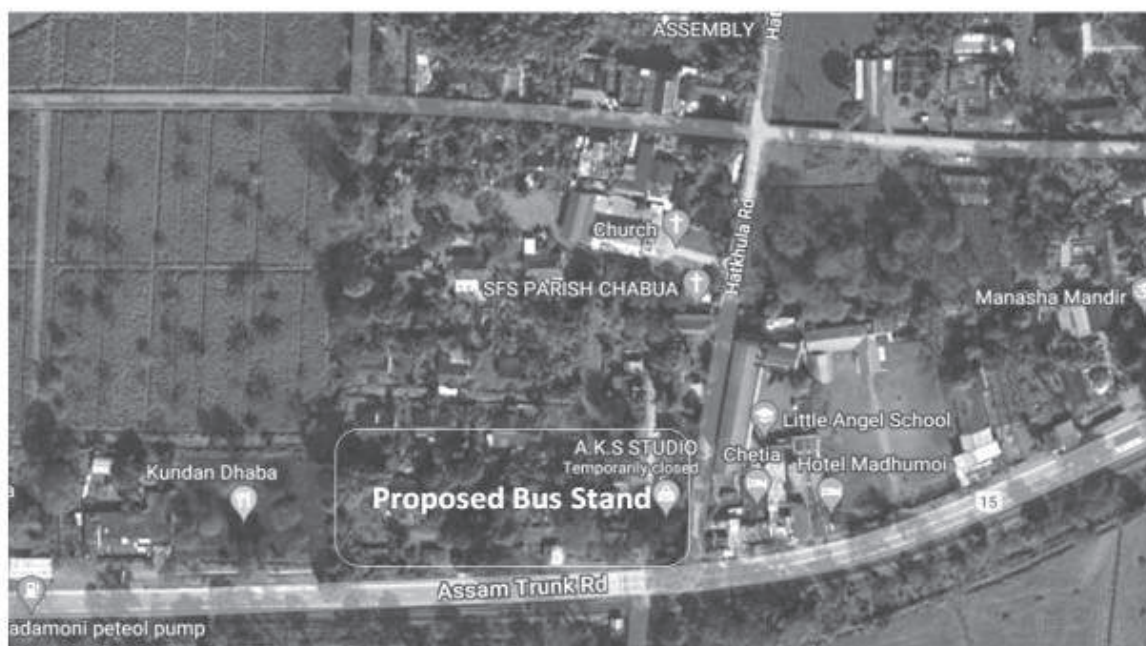
9.2 Fund Requirement for Each Sector/ Project

Fund requirement for each sector project will be finalized by the ULB & concerned line department after preparation of detailed project report as per Govt. instruction.

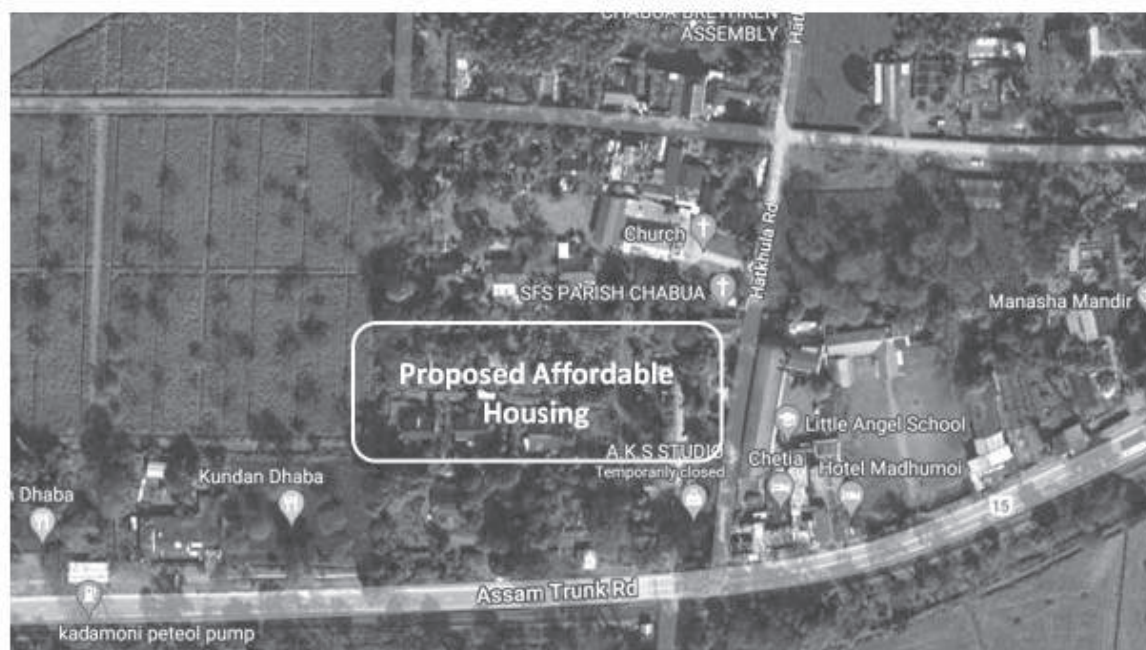
9.3 Identify Land Site for Proposal

The plan finds the following sites are suitable for taking up the proposals in accordance with the existing trends of growth as well as for balanced development.

- (1) Bus Stand : Hatkhula Bongali gaon by the side of NH-15.



- (2) Affordable Housing at Hatkhula Bongali gaon by the side of Hatkhula road.



- (3) Truck Stand and Logistic Hub at Dinjoy Chapori gaon by the side of the Bypass.



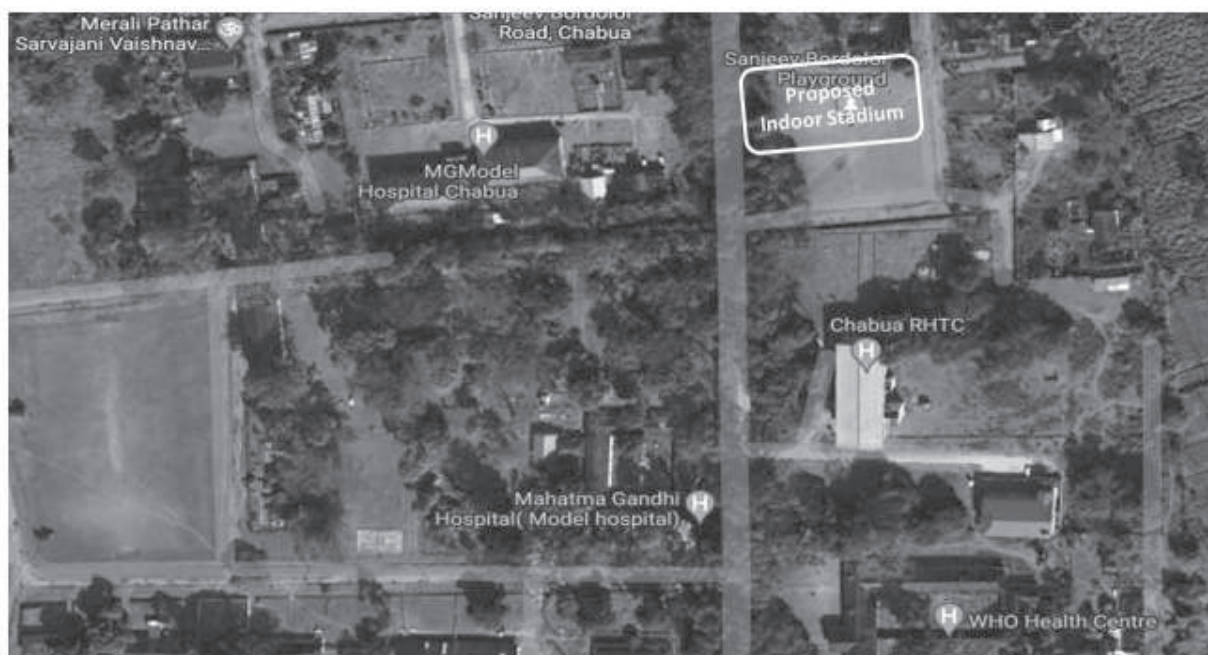
- (4) Proposed Industrial Area at Pulunga gaon Part-1 (by the side of Chabua-Tengakhat road)



(5) Proposed Town Hall near Circle Office, Chabua



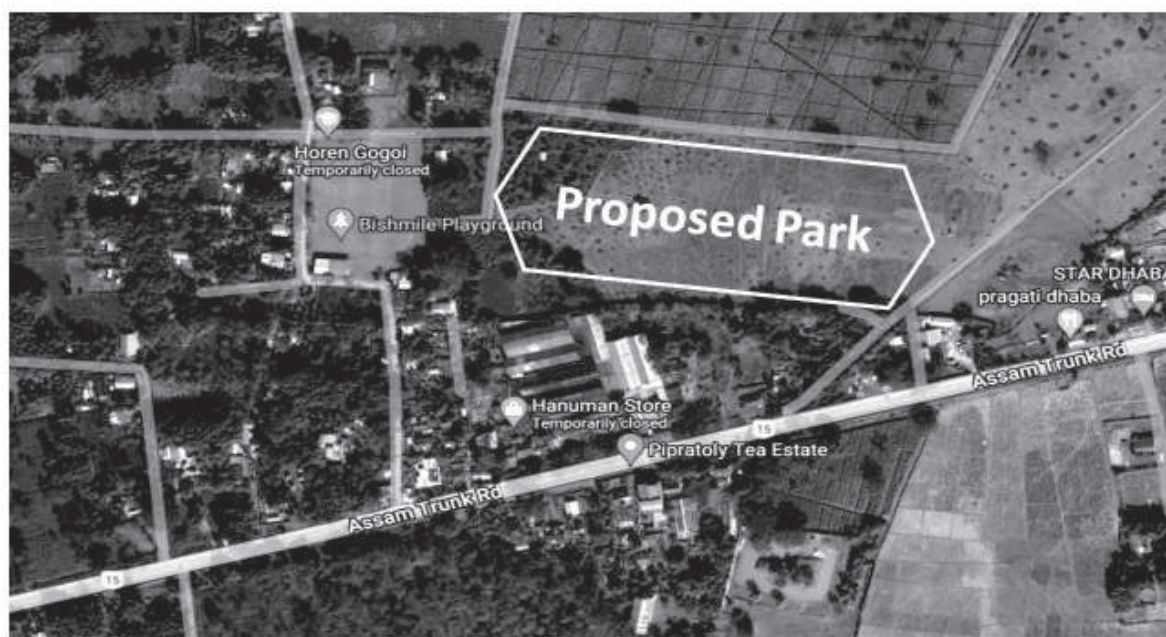
(6) Proposed Indoor stadium near Circle Office, Chabua



(7) Proposed Naturopathy Centre near Mahatma Gandhi Model Hospital, Chabua



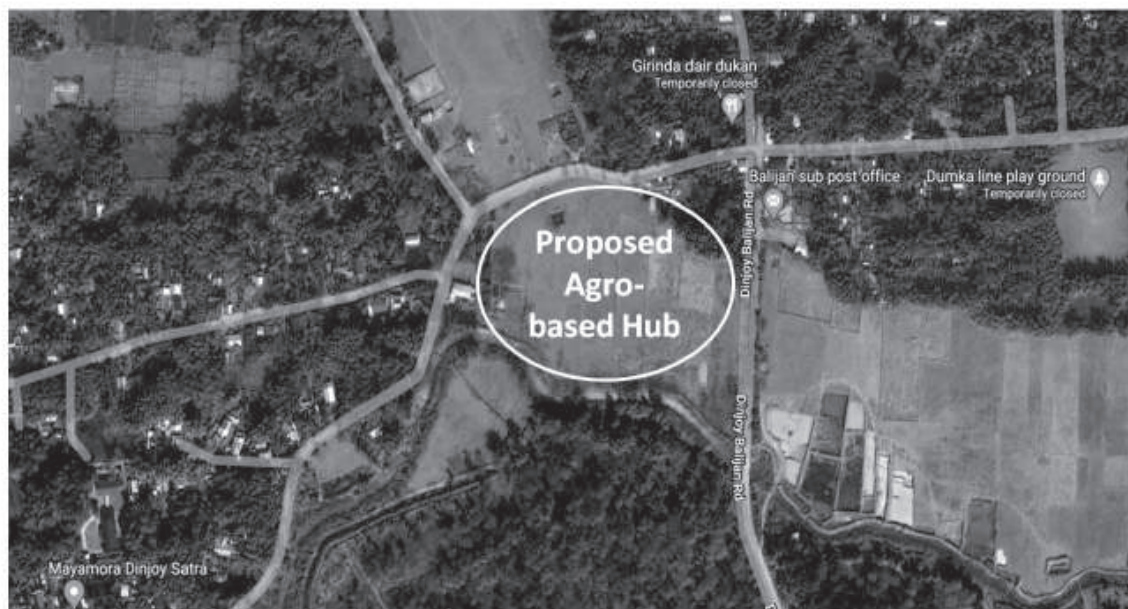
(8) Proposed Park at Chungichuk gaon besides Kanjikhowa Golf Course



(9) Proposed T-type Fly-over at the junction point of NH-15 & Chabua-Tengakhat Road



(10) Proposed Agro-based Hub at Dinjoy Chapori gaon by the side of Dinjan stream.



(11) Proposed Fire-station at Dinjoy-Chapori gaon by the side of Bypass.



(12) Cycle Track at Bypass (from College Road, Koilabari bagan gaon to Borbari bongali gaon)



(13) Vendor's & Hawker's market at Chabua Daily Market

**9.4 Indicative Sources of Fund**

The ULB & concerned line departments will submit the DPR's to their respective departments for sanctioning fund from State & Central Government under various schemes like NLCPR, NEC, 10% pool fund etc. The ULB's can also adopt the policy of Private Public Partnership (PPP) mode for raising the fund for a few remunerative projects.

CHAPTER- 10

10. DISASTER PLAN

10.1 Hazards Specific Proneness in Chabua:

➤ **Earthquake :-**

As per the latest seismic zoning map of India, the Chabua region falls under High Risk Zone- V, where a maximum intensity of IX can be expected.

➤ **Flood : -**

Even Chabua town is also facing urban flooding in many localities due to lack of proper drainage system.

➤ **Soil Erosion : -**

The soil erosion is major threat to many areas due to the Chabua river in some parts of the master plan area.

➤ **Fires : -**

The fire takes place in Chabua due to short circuit in commercial areas, thatched house. Mainly fire takes place from March to April when the climate remains very dry.

➤ **Cyclone:-**

In Chabua cases related to low density cyclone occurred in some places.

10.2 Need for Disaster Management

Data on disaster occurrence, its effect upon people and its cost to countries, are primary inputs to analyse the temporal and geographical trends in disaster impact. Disaster losses, provide the basis for identifying where, and to what extent, the potentially negative outcomes embedded in the concept of risk is realized. They help to understand where, and to whom, disaster risk becomes impact. They also provide the basis for risk assessment processes, a departing point for the application of disaster reduction measures.

Development cannot be sustainable unless disaster mitigation is built into development process. Investments in mitigation are more cost effective than expenditure on relief and rehabilitation. Prevention and mitigation contribute to lasting improvement in safety and are essential to the integrated disaster management system. Disaster response alone is not sufficient as it yields only temporary results at a very high cost. So, emphasis must be on Disaster prevention, mitigation and preparedness, which help in achieving objectivity of vulnerability reduction.

As per Section 40 of Disaster Management Act, 2005 that every department of the State Government shall prepare a Disaster Management Plan.

10.3 Importance of putting Disaster Management Plans In Place

Disasters are events that have a huge impact on humans and/or the environment. Disasters require Government intervention. They are not always unpredictable. Floods take place in valleys and flood plains, droughts in areas with unstable and low rainfall, and oil spills happen in shipping lanes. This predictability provides opportunities to plan for, prevent and to lessen the impact of disasters.

Disasters arise from both natural and human causes, and the responses needed could stretch community and government capacity to the limit. Disasters are inevitable although we do not always know when and where they will happen. But their worst effects can be partially or completely prevented by preparation, early warning, and swift, decisive responses.

Disaster management aims to reduce the occurrence of disasters and to reduce the impact of those that cannot be prevented. The Government White paper and Act on Disaster Management define the roles of Local Authorities as well as Provincial and National government in disaster management.

North East Region has been vulnerable to many natural and manmade disasters in the past. We can notice that most of the disasters have occurred within the last two decades, and the frequency, intensity and magnitude of the disasters are ever increasing.

10.4 Plan Objectives

The objectives of the Disaster Management Plan are:

- Disaster management in the routine affairs of the office
- To provide technical and humanitarian assistance during disaster
- Prompt and effective discharge of office responsibilities during disaster situations
- Ensuring safety of office infrastructure, human resource and other assets
- Ensuring safety of the beneficiaries and others
- Speedy restoration after disaster impact
- To conduct trainings and capacity building for effective prevention, mitigation and response for disasters.
- To undertake information, education and communication activities to create awareness among the communities and the general public.

10.5 Likely geographical extent and magnitude / severity

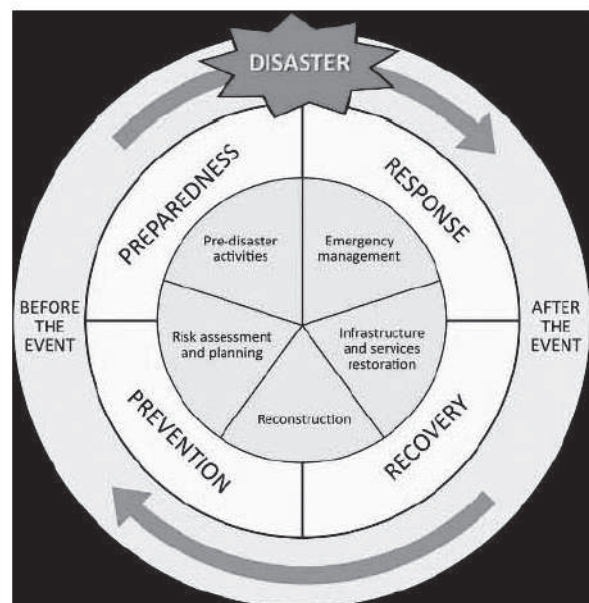
- 1) The master plan area is situated on a flat land. Chabua is severely prone to flood. Moreover, some parts of Chabua town is located in very low lying area with poor drainage system with unplanned development, so there are every chances of flash flood due to heavy rainfall. Such flash floods have been experienced during last five years.
- 2) Assam as a whole is within the Zone V of earthquake zone. Especially Chabua has witnessed a devastating earthquake in 1950. So, it can be said that geographically and geologically Chabua is situated in a very hazards prone zone.
- 3) Chances of landslide are comparatively less in this region. But fire can broke out in the congested residential, commercial areas and market of the town anytime during lean season. The region has faced cyclones several times in the past. Road accident, rail accident, etc. can occur at any time. Of course riot is not so common in this region.

10.6 Disaster Management Cycle

In multi-hazard response plan, the disaster management cycle has a significant role to play. The four stages of disaster cycle have their own importance in terms of their implementation during, after and before the occurrence of any disaster.

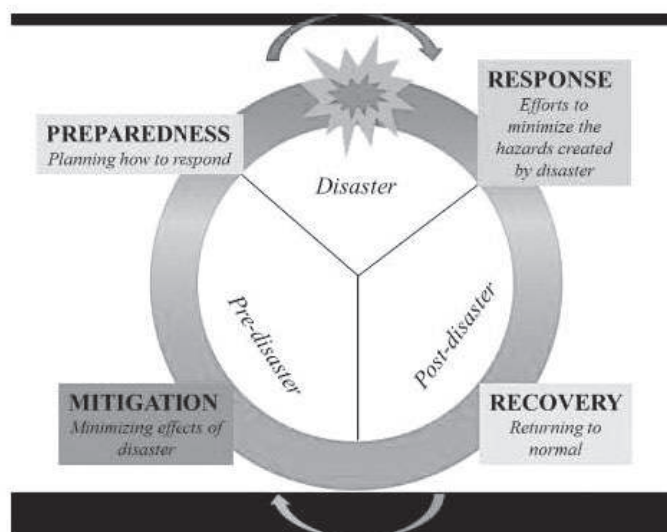
Pre disaster activities

1. Policy development and National, State, district, local level disaster organization formation
2. Vulnerability and capacity assessment.
3. Prevention and mitigation
4. Preparedness, planning and training



During Emergency activities

1. Warning (beginning before the actual event)
2. Evacuation, search and rescue
3. Emergency assistance (relief) – food, water, shelter, medical aid

**Post disaster activities**

1. Repair and restoration of life lines (power, telecommunications, water transportation)
2. Reconstruction and rehabilitation.

10.7 Formation of Chabua Disaster Management Cell (CDMC)

This Master Plan recommends for formation of a Chabua Disaster Management Cell (CDMC) in the office of the Chairman, Chabua Municipal Board, as per Section 40 of Disaster Management Act, 2005.

The CDMC has to be constituted with the following functionaries are Chairman/Chairperson of the municipal board as the Chairman of the cell, Vice Chairman of the municipal board as the Co-Chairman of the cell, Chief Executive officer of the municipal board as the Executive Officer and the members are SDO (Civil), Health, Roads, Building, other relevant department and the Assistant/Junior Engineer of the municipal board as Nodal Officer.

The CDMC will give emphasis towards the preparation of Chabua Disaster Management Plan. The plan also recommends that the CDMC cell to co-ordinate during emergency with the District Disaster Management Authority (DDMA) located at the Head-Quarter of the District. The CDMC Cell will provide all the available resources and manpower for Disaster Management. This Cell will mobilize the service of technical personnel for the damage survey work to help the District Administration.

The CDMC must meet at least once in six months i.e. in the month of March and September before the Disaster Season (Flood & Cyclone) of Chabua town under the chairmanship of the Chairman, Chabua Municipal Board & to update the plan. For this one month's prior notice should be given to all concerned departments before convening the meeting. Chairman should review the work of CDMC. An emergency meeting will hold whenever information is received regarding calamity.

10.8 Standard Operation Procedure (SOP)

The Master Plan recommends the CDMC for formulation of Standard Operation Procedure (SOP) for automatic response of the members during disaster.

- Written guideline that precisely defines how operations are to be carried out.
- An organizational directive that establishes a standard course of action.
- Written guidelines that explain what is expected and required of the personnel.
- Standardization of activities :-
 - Identify planned and agreed upon roles & actions.
 - Promotes coordination and communication amongst personnel.
 - Simplify decision making during potentially stressful conditions.

Proper implementation of Assam Notified Urban Area Building Rules – 2014 (ANUABR) & Sensitization among stake holders engaged for construction work / owners to use disaster resistant technologies

10.9 Rainwater harvesting

Chabua Zone has experienced heavy rainfall during summer season due to the south-western monsoon that leads to artificial floods not only in the plan area. So, the plan recommends adoption of rainwater harvesting system in construction activities that will reduce the volume of artificial floods in the master plan area and also help to maintain the ground water level.

10.9.1 Do's & Don'ts during**a) EARTHQUAKE**

b) FIRE



END

ANNEXURE-I

Table- 43
Actionable points for various line departments

Sl. No.	Name of line Department/ Agency /	Proposal	Action to be under taken towards implementing proposal
1	Chabua Municipal Board	Affordable Housing Scheme, Solid Waste Management, Construction of vendor & Hawker Market, Construction of Tourist Lodge, Bus Stand & Parking	Line department shall prepare concept paper / DPR whichever is applicable as per directive of the government for consideration of funding under 10% pool fund, NLCP, NEC, State Finance Commission, CSR Fund of Pvt. Sector etc. in a phased manner during the Master Plan period i.e. up to 2041. A few selected schemes like housing colony can be considered under PPP mode.
2	Public Works Department & Chabua Municipal Board	Footpath & cycle Track Road signage in roads and in accident prone area Road Signage & Street Furniture	
3	ASEB & Chabua Municipal Board	Improvement of street lighting	
4	Public Administration and Chabua Municipal Board	Construction of Auditorium & Library	
5	Public Works Department	Widening of Road	
6	Chabua Municipal Board and Town & Country Planning Assam	Development of Drainage system	
7	Chabua Municipal Board and Public Health Engineering Department	Improvement of sanitation	
8	PHE Department & Assam Urban Water Supply and Sewerage Board	Water Supply Scheme	
9	Education Department, NGO and Private Agency	Education Facilities	

10	Health Department, NGO and Private Agency	Health Care Facilities	
11	Sports & Youth Welfare Department & Sports Association	Development of playground and construction of stadium	
12	Social Forestry, Chabua Municipal Board, Public Administration and NGO	Protection & Conservation of environmentally friendly zone	
13	Social Forestry Department	Roadside Plantation & Urban Afforestation	
14	Agriculture Department	Urban Agriculture & Organic Farming	
15	Transport & Railway Department	Transit Zone	



